# The Journal of the American Medical Association

**Published Under the Auspices of the Board of Trustees**

VOL. 82, No. 22 CHICAGO, ILLINOIS MAY 31, 1924


## THE MORBIDITY OF ENDEMIC GOITER *


FREDERICK A. COLLER, M.D.

ANN ARBOR, MICH.


This short study is an attempt to emphasize the fact that all goiters are potentially dangerous and that most of them do, in fact, eventually produce not only symptoms but also definite pathologic lesions.

Our knowledge of the physiology and pathology of the thyroid gland has been increasing so rapidly that, even with many basic physiologic truths yet to be discovered, we have at hand enough facts to enable us to deal in a fairly satisfactory manner with abnormalities of this gland.

There is not at present an entire unanimity of opinion in regard to the classification of goiter, but the differences hinge largely on words rather than on essential facts, and the confusion that does exist is one of nomenclature and not of fundamentals. Because of this confusion, it will be advisable to set forth the classification used in this analysis of cases. I have followed Plummer's [1] classification, which is eminently satisfactory from a clinical standpoint. According to this classification, there are three histologic variations from the normal thyroid structure which forms its basis: (1) hypertrophy and hyperplasia of the alveolar epithelium; (2) marked increase of the intra-alveolar colloid, and (3) the development of new alveoli. According to the predominating type of variation, a goiter may be hypertrophic, colloid or adenomatous, but any or all forms may be present in any gland.

Three variations in function may be noted: (1) pure hyperthyroidism; (2) pure hypothyroidism, and (3) exophthalmic goiter. The chief difference of opinion turns on whether any differentiation should be made between adenoma with hyperthyroidism and exophthalmic goiter. I agree with Plummer that they are two distinct entities, but whether they are or are not has no bearing on what I wish to emphasize, and will not be discussed here. The ratio between these various types of goiter varies widely according to locality and to the geographic area from which any given clinic draws its patients.

In order to determine this proportion for our clinic, a series of pathologic reports were analyzed, with the results shown in Table 1.

The low percentage of true hypertrophic goiter and the high percentage of the adenomatous group is easily explained by the fact that our material is all drawn from a region in which endemic goiter is prevalent, and consequently our interest has been centered on this type.

That type of goiter, variously called endemic, cystic, simple and adolescent, which is the type common to goiter belts and areas, is either a colloid or an adenomatous goiter or a combination of these types, called adenomatous colloid or colloid adenomatous goiter. The adenomas usually are encysted, but diffuse adenomatosis is not uncommon. As shown in Table 1, the largest percentage of goiters occurring in the goiter area is of this type, the most important fact about them being that they are preventable, and that with proper utilization of prophylactic measures they should cease to exist. This cannot occur for some time, however, and their great frequency in certain areas is well shown by the reports of draft boards [2] and by surveys made by Marine and Kimball [3] in Akron, Ohio, by Levin [4] in Houghton County, Mich., and by R. M. Olin in several Michigan counties.

The commonest form is a combination of colloid with adenoma, with the ratio between the two components changing with age. These goiters are commonly first noticed at puberty, and consist largely of colloid. The same deficiency that causes the distention of the alveoli with colloid may also act on the embyronal cells, causing them to form new alveoli, which constitute the adenomas. When first noticed, the goiter is smooth and symmetrical, and the adenomatous elements may be palpable, although they more often are not, and during the second decade of the patient's life they usually do not function. With the passage of time, the colloid element tends to decrease so that at the age of 25 the colloid component has diminished markedly; but the adenomatous portion, if present, has increased in ratio and usually in actual size.

A goiter once overloaded with colloid usually retains some of this colloid, so that a certain amount is always present in it. This progressive change in the ratio between the colloid and the adenomatous elements tends to continue until the adenomas dominate the picture. During their life cycle, they have been undergoing continuous changes of a degenerative nature, and it is common to find all stages of this in one goiter, hemorrhagic, cystic, hyaline, fibrous and calcareous degenerations existing coincidentally.

During the latter part of the third decade of the patient's life the adenoma may be functioning and hyperthyroidism begin to appear. The exact mechanism


* From the Department of Surgery, University of Michigan Medical School.


1. Plummer, H. S.: The Clinical and Pathologic Relationships of Hyperplastic and Nonhyperplastic Goiter, J. A. M. A. **61**: 650 (Aug. 30) 1913.

2. Defects Found in Drafted Men, War Department, 1920.

3. Marine, David; and Kimball, O. P.: The Prevention of Simple Goiter in Man, J. Lab. & Clin. Med. **3**: 40 (Oct.) 1917.

4. Levin, S.: One Thousand One Hundred Forty-Six Goiters in One Thousand Seven Hundred Eighty-Three Persons, Arch. Int. Med. **27**: 421 (April) 1921.

of its production is not known, but that it is a result of activity in the adenomas rather than in the remainder of the gland is generally believed.[5]

As clinical evidence of this progressive relationship between the colloid and the adenomatous elements, Chart 1 is presented. This has been taken from an

TABLE 1.—*Pathologic Classification of Five Hundred Goiters Showing Percentages of Each Group, with a Subclassification of the Adenomatous Group*

| | Percentage |
|---|---|
| Hyperplasia | 9.96 |
| Colloid | 18.00 |
| Adenomatous | 67.80 |
| Carcinoma | 1.25 |
| Sarcoma | 0.66 |
| Thyroiditis | 1.25 |
| Adenomatous: | |
| Colloid adenoma | 85.6 |
| Fetal adenoma | 10.7 |
| With hyperplasia | 3.7 |

article by Levin,[4] and shows the result of an examination of the goiters of 993 females, varying in age from 1 to 61. These patients lived in the same locality, and their goiters probably were due to the same stimulus; consequently, the same pathologic condition would be expected to be present in all of them.

The adenomatous goiter is diagnosed by the presence of nodules, the colloid goiter by its usual characteristics. Adenomas may well have been present but not palpable in the goiter called colloid, and with advancing age the increasing percentage showing adenomas is marked. One may fairly assume that the goiter called colloid up to the age of 25 is the same goiter called adenomatous at 45 with the change in the prominence of the component parts. Undoubtedly, some goiters in this group may always remain pure colloid, and, likewise, in some the adenomatous element may dominate the picture from its inception; but the largest number are of the mixed type.

It is commonly said that this type of goiter produces symptoms in at least two ways, by pressure on the structures of the neck, especially the trachea, or by the production of hyperthyroidism. In order to ascertain what proportion of this group of cases presented hyperthyroidism, we analyzed a series of cases in this group, with the results shown in Table 2. The patients are grouped according to age, and show a definite increasing percentage of those with an elevated basal metabolic rate with each decade up to the age of 50. That is, a

TABLE 2.—*Analysis of Adenomatous Goiter Cases; Percentages of Increased Basal Metabolic Rate by Decades*

| | Basal Metabolic Rate | |
|---|---|---|
| | Normal | Elevated |
| Second decade (10 to 20) | 100.0 | 0.0 |
| Third decade (20 to 30) | 88.7 | 11.3 |
| Fourth decade (30 to 40) | 70.0 | 30.0 |
| Fifth decade (40 to 50) | 68.0 | 32.0 |
| Sixth decade (50+) | 81.0 | 19.0 |

person with an adenomatous colloid goiter may have hyperthyroidism in the late twenties, and with each year thereafter have an increasing and definite chance of developing this complication. These figures are based on hospital cases and are higher than in any unselected group.

5. Plummer, H. S.: Interrelationship of Function of the Thyroid Gland, and of Its Active Agent, Thyroxin, in Tissues of Body, J. A. M. A. 77: 243 (July 23) 1921.

This ratio between those with hyperthyroidism, as shown by an elevated basal metabolic rate, and those with a normal basal metabolic rate will vary greatly in different clinics, depending largely on the type of patient in that clinic. Boothby [6] states that from 17 to 20 per cent. of persons with adenomatous goiters in the Mayo Clinic have hyperthyroidism.

The adenomatous goiters with hyperthyroidism and the exophthalmic goiter together form the so-called toxic goiter group, the symptoms, morbidity and dangers of which are well known, acknowledged and much emphasized. Since this is conceded, let us exclude this group and consider only the rest of the adenomatous goiters; that is, the so-called nontoxic group, comprising those adenomatous goiters in which there is a normal basal metabolic rate at the time of examination. One finds that definite pathologic signs and symptoms, aside from the presence of the tumor, are found in an appreciable percentage of these persons. These disorders center largely in the cardiovascular system.

We took for analysis 300 cases of adenomatous goiter in patients above the age of 20 whose basal metabolic rate was found to be within normal limits, using from plus 15 to minus 15 as these limits. These were

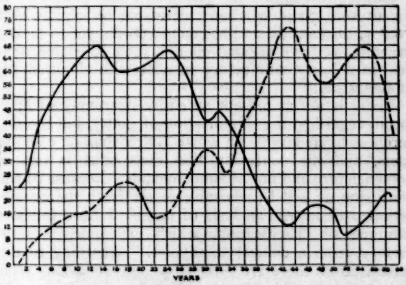



Chart 1.—Different types of goiters in 993 females aged from 1 to 61 years, inclusive: solid line, mean curve for percentage of colloid goiter; broken line, mean curve for percentage of adenomas.

grouped according to age into four classes, corresponding to the third to the sixth decades. A few patients in the seventh decade of life were included in the sixth decade. There were approximately the same number in each group. They were then analyzed to determine what percentage of them showed definite tracheal compression, tachycardia, cardiac enlargement, cardiac irregularity and psychoses. Also the number complaining of palpitation and dyspnea was noted. Asthenia, loss of weight, tremor and various nervous phenomena were present in many cases, but have not been tabulated here because the findings were variable, as the histories and examinations were made by several persons without common standards of comparison.

The pulse rates were all apex observations, and the most of them were sleeping rates. Cardiac enlargement was determined by physical examination, checked by orthodiagram. Cardiac irregularities were determined by the electrocardiogram or by competent internists, and tracheal pressure was determined by roentgen-ray examination of the trachea and the thorax and by direct examination. The results are shown in Table 3.

6. Boothby, W. M.: Diagnosis and Treatment of Disease of the Thyroid Gland, Oxford Medicine 3: 833.

The number of cases analyzed is too small to make the percentage in any group even approximately correct, but it would seem to indicate definitely the presence of cardiovascular abnormality, and also to show the progressive increase in the number involved, and in the severity of the lesion with each succeeding decade. In no group is the number of cases with pressure, as measured by the presence of any degree of tracheal compression, equal to the number with heart symptoms. Consequently, we cannot regard this as a sole causative factor. Pressure of a marked degree was present in only a very few, and we did not feel that it did more than produce dyspnea in any case.

The increase in the number and severity of the lesions with age is shown in a more striking and graphic way in Chart 2.

Not all the cardiovascular lesions present in these cases are due to the goiter, as any group of persons examined at progressive ages would show an increasing incidence of these lesions, but I believe not anywhere near this proportion.

This is the so-called "goiter heart," first described by Kraus,[7] in 1899, of which much has since been written; but its presence in this nontoxic group of cases has not been sufficiently emphasized.

The causative factor is not clear, and while many theories have been advanced, many of them had their inception prior to the advent of metabolic studies and do not take into account our present knowledge. It probably is caused by a long standing, low grade toxemia of some sort. It may be due to a very low grade hyperthyroidism, or there may have been measurable exacerbations of this in the past, without symptoms severe enough to call attention to them. If one appreciates the fact that there may be adenomas in various stages of degeneration in the same gland, it seems not inconceivable that different adenomas may, at varying intervals, be causing the overactivity, as they pass through certain of their degenerative phases, thus providing a toxemia of varying intensity over long periods of time. That hyperthyroidism of some intensity has existed is a probability, since it exists in a measurable form in such a large number of them at the time of observation. Fortunately, it seems clear that the removal of the adenomatous goiter will relieve these cases. It will not cure the degeneration of organs present late in the disease, although certain of them are undoubtedly improved by removal of their cause.

TABLE 3.—*Analysis of Adenomatous Goiter Group with Normal Basal Metabolic Rate, Showing Morbidity by Decades*

| | Pulse Rate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Tracheal | | | | En- | Auricular | Pal- | | |
| Decade | Pressure, per Cent. | Below 80, per Cent. | 80 to 100, per Cent. | 100+, per Cent. | larged Heart, per Cent. | Fibrillation, per Cent. | pitation, per Cent. | Dyspnea, per Cent. | Psychoses, per Cent. |
| Third.. | 18 | 46 | 36 | 18 | 18 | 0 | 53 | 47 | 0 |
| Fourth | 36 | 41 | 45 | 14 | 43 | 0 | 48 | 60 | 5 |
| Fifth... | 24 | 26 | 37 | 37 | 45 | 4 | 65 | 58 | 4 |
| Sixth... | 26 | 20 | 53.4 | 26.6 | 50 | 30 | 63 | 76 | 7 |

Certain factors seem to be instrumental in bringing on the acute phases of hyperthyroidism, important among which are acute infections, excessive use of iodin, many pregnancies in rapid succession and, perhaps, the menopause. Aside from these, the time interval is the important factor in producing morbidity.

7. Kraus, F.: Ueber Kropfherz; Beziehungen zwischen Struma und Morbus basedowii, Wien. klin. Wchnschr. **12**: 416, 1899.

Every one will concede the dangers of and the incapacity produced by adenomatous goiter with hyperthyroidism. I have emphasized here the already known fact that definite lesions may exist in all stages of the development of the adenomas, during and following the third decade of life, even without a measurable hyperthyroidism. Active hyperthyroidism and permanent degeneration tend to occur later in life. No one can foretell which particular goiter of this type is going to exhibit hyperthyroidism or cause cardiovascular lesions of a severe degree, and the odds are all in favor of the appearance of incapacitating and dangerous lesions. A large percentage of cases of malignant disease of the thyroid have their origin in adenomatous tissue, and early removal of the goiter would undoubtedly prevent many appearances of this group of neoplasms.

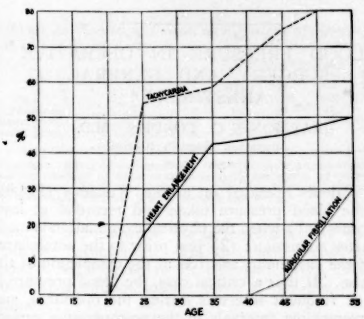



Chart 2.—Increase with age of percentage of patients with a normal basal metabolic rate exhibiting abnormalities of cardiovascular system.

Few patients with goiters of the adenomatous type receive permanent relief from nonoperative therapy after the age of 25. The mortality from surgery of adenomatous goiters at this age is very low. Its greatest mortality is in this group when permanent damage of the heart and other organs is present.

We have seen many patients with adenomatous goiter with marked cardiovascular complications who at times in the past had been told that as long as their goiter did not bother them, they should let it alone. When it did bother them, they had definite myocarditis.

We believe that an adenomatous goiter in a person of 25 is a distinct menace, and that operation should be advised on diagnosis. Prophylactic surgery is as important to patients with adenomatous goiters as the prophylactic medication is to those without them. Prior to this age, operation may be necessary for the relief of pressure symptoms, but the goiter is not usually dangerous at this time.

## CONCLUSIONS

1. Endemic goiter is a combination of colloid and adenomatous elements. The adenomatous elements dominate the picture after 30.

2. The percentage of patients with hyperthyroidism increases with age up to 50.

3. In those cases in which there is a normal basal metabolic rate at the time of examination, a large percentage will show or develop eventually serious cardiovascular disorders.

4. The time element is a most important factor in causing both hyperthyroidism and organic degenerations.

5. Operative removal should be advised for adenomatous goiters, at least by the age of 30, as a prophylactic measure, even though no definite symptoms exist at this time.

## BLOOD PRESSURE IN OPERATIVE SURGERY AND GENERAL ANESTHESIA *

RAYMOND C. COBURN, M.D.
Anesthetist, Woman's Hospital
NEW YORK

All patients operated on at the Woman's Hospital have the blood pressure taken and recorded at least three times: (1) when the physical examination is made soon after admission; (2) just prior to the administration of the anesthetic, and (3) at the completion of the operation. If it is a critical case, the blood pressure is taken at frequent intervals during the operation, and at corresponding intervals in the postoperative period. If at the first examination the blood pressure is markedly abnormal, it is taken repeatedly during the study of the case, and the lowest pressure observed during this study is considered normal for that patient unless there are attenuating circumstances.

TABLE 1.—*High Blood Pressure on Day Preceding Operation*

| | Pulse | Respiration | Blood Pressure: Systolic | Blood Pressure: Diastolic | Pulse Pressure |
|---|---|---|---|---|---|
| On admission | 80 | 20 | 220 | 120 | 100 |
| Preanesthetic | 70 | 18 | 198 | 120 | 78 |
| Postoperative | 76 | 34 | 116 | 80 | 36 |
| On two occasions before admission to the hospital, pressures were... | .. | .. . | 135 | 90 | 45 |

Operation: Hysterectomy, bilateral salpingo-oophorectomy and appendectomy. Time: One hour and thirteen minutes. Ether anesthesia.

It often takes several observations to approximate the normal level, but unless this is done the blood pressure figures may be grossly misleading. This is especially true when the patient comes to the hospital one day and is operated on the next (Table 1). The nervous tension of entering the hospital and of undergoing the physical examination sends the systolic pressure of the majority of patients up from 5 to 20 mm., and the other pressures accordingly. Just prior to the administration of the anesthetic another increase is shown, which really amounts to something, from 10 to 40 mm. systolic, ordinarily, and occasionally on up to 80 and 90 mm. Here is some food for thought, in that all these patients have received a preliminary injection of morphin.

These pronounced changes in pressure are not confined to any race, color, age or class, as they occur throughout the clinic and the private cases of both the attending and the courtesy staffs.

On the other hand, some patients show no increase of blood pressure on admission, or before anesthesia, while others show the greatest elevation at the time of the first examination.

The reactions of the blood pressure in different individuals vary so much that the general tendency sheds no light on any particular case, but each must be examined and considered by itself.

Some regard blood pressure as the most reliable means at hand for estimating the patient's circulatory reserve, or power to withstand operative procedure. Moots' rule is followed by many in operative prognosis. It may thus be stated:

> The pressure ratio, a fraction having the pulse pressure as numerator and the diastolic pressure as denominator, may be normal between 40 and 60 per cent. If the ratio is either high or low, there is reason to apprehend danger. If the ratio lies between 25 and 75 per cent., the case is probably operable; if it is outside these limits, it is probably inoperable.[1]

Miller,[1] in checking up this rule in 1,000 cases, reports a death rate of 3.23 per cent. in the operable class, and a death rate of 23.07 per cent. in the probably inoperable class.

During the last institutional year of the Woman's Hospital, the attending staff performed 1,312 operations. Of these, twenty-two patients died, a mortality of 1.68 per cent.

Of these deaths, four were in the "probably inoperable" class. The time after operation and the causes of death were:

1. Five days; septicemia. (The patient evidently was infected from a virulent streptococcic pus tube at the time of operation.)
2. Twenty-eight days; pulmonary hemorrhage.
3. Ten days; septicemia (toxic absorption from necrotic fibroid following simple drainage).
4. Thirteen days; bronchopneumonia.

It will thus be seen that, while there were deaths in this class, Motts' method of evaluation was inapplicable to them. That is, these deaths were not due to causes with which it is concerned—the patient's circulatory reserve. Nevertheless, I believe that it is a good rule to keep in mind, but only as being the point at which the caution signal should be raised. To apply it too rigidly would be to deprive a large number of the benefits of surgery that may be done with comparative safety.

Just as the majority of patients show an increase in blood pressure at the time the administration of the anesthetic is begun, so the majority of patients show a decline after anesthesia is established and the operation is well under way, especially when the nature of the operation requires full surgical anesthesia and considerable traumatism. But here, again, there is variation. Of course, those having shown the greatest preliminary rise now show the greatest fall. And when the anesthetist is dealing with a falling blood pressure, the importance of having previously established the normal level becomes apparent, for shock does not impend until blood pressure is considerably below normal. Just how much of a real, as distinguished from the apparent, fall may be tolerated before shock develops depends on several factors, included in which are the stages of the operation, the depth of the anesthesia, and the position of the patient.

The Trendelenburg is the greatest offender of the usual positions. Care should be taken when using it. Deep anesthesia is a greater factor in lowering the blood pressure than it is generally considered. The nearer the end of the operation, the better the fall in pressure is tolerated, on account of an early cessation of traumatism and the lightening of the anesthesia. The patient showing the greatest preoperative rise in

* From the Woman's Hospital Clinic.

1. Miller, A. H.: Blood Pressure in Operative Surgery, J. A. M. A. 74: 514 (Feb. 21) 1920.

blood pressure cannot sustain a pronounced and a prolonged fall below the normal so well as patients whose blood pressure is more stable.

When the postoperative pressure shows a fall of 20 per cent. below normal, with a pulse rate increased to 120 or more, the patient is in considerable depression, and should be carefully watched if not actually treated for depression. If "watchful waiting" is pursued, and the blood pressure continues to fall or the pulse to increase, most certainly special treatment should be instituted. During the operation, a somewhat greater depression may be tolerated, if not of too long duration. The color of the patient's cutaneous circulation, when uninfluenced by the administration of oxygen or by some obstruction to a free respiratory movement, is an important index of the efficiency with which the vital functions are being carried on, and should be considered in the total picture.

Blood transfusion stands at the head of the list of the means used for both the prophylactic and the restorative treatment of surgical shock and hemorrhage. However, in many cases, when serious depression occurs during or soon after the operation, blood transfusion usually is not available soon enough, for time is an all-important factor in the restorative treatment. To tide over till the patient can be typed and a donor arranged, 250 c.c. of a 6 per cent. solution of gum acacia and 20 per cent, glucose is introduced intravenously at the rate of 4 c.c. a minute. The solution needs to be specially prepared, and may be kept ready for emergency use.

TABLE 2.—*Record of Patient Given 250 c.c. of Gum-Glucose Solution*

| | Pulse | Respiration | Blood Pressure: Systolic | Blood Pressure: Diastolic | Pulse Pressure |
|---|---|---|---|---|---|
| On admission | 120 | 24 | 112 | 80 | 32 |
| Preanesthetic | 130 | 24 | 118 | 86 | 30 |
| Postoperative | 152 | 36 | 76 | 64 | 12 |
| 5:05 p.m. (45 minutes later) gum-glucose solution started | .. | .. | 74 | 64 | 10 |
| 6:06 p.m. gum-glucose solution finished | .. | .. | 100 | 60 | 40 |
| 7:15 p.m. | .. | .. | 102 | 60 | 42 |
| 9:35 p.m. | .. | .. | 103 | 76 | 27 |
| 11:50 p.m. | .. | .. | 104 | 64 | 40 |
| 8:30 a.m. the following day | .. | .. | 124 | 74 | 50 |

Operation: Appendectomy, freeing of adhesions and enterorrhaphy. Time: One hour and twenty minutes. Ether anesthesia, rebreathing method; amount, 9¾ fluid ounces (273 c.c.).

The salient points in the gum-glucose administration are: 1. The solution must be sterile and clear. 2. It must be given slowly. 3. It must not be given in too large amounts. 4. It should reach the vein at body temperature.

Blood pressure is increased immediately on the administration of this solution, the patient becomes decidedly more pink, and there is every indication of a pronounced general improvement. The improvement is so decided that in some cases blood transfusion may not be necessary, even though it seemed imperative at the time the gum-glucose was administered. Such patients, however, must be carefully watched, for if there is not a genuine systemic reaction the blood pressure will fall again after a few hours, and the patient will again be in a critical depression.

The use of these two means for the prophylactic and the restorative treatment of shock and hemorrhage is undoubtedly reflected in the mortality statistics herein reported. It is significant that there was not a single death in the "probably inoperable" class during the past institutional year that was due to circulatory disturbance, which is the basis of Moots' classification.

Attention is directed to the low postoperative systolic and pulse pressures given in Table 2. A systolic pressure of 76 or less, and a pulse pressure of from 10 to 12 for more than forty-five minutes, more than fulfils the "standard requirements" for a termination by way of circulatory exhaustion. Yet this case is not at all special in its response to the treatment given (250 c.c. gum-glucose solution intravenously at the rate of 4 c.c. a minute).

TABLE 3.—*Record of Patient with History of Epilepsy*

| | Pulse | Respiration | Blood Pressure: Systolic | Blood Pressure: Diastolic | Pulse Pressure |
|---|---|---|---|---|---|
| On admission | 70 | 18 | 123 | 82 | 41 |
| Preanesthetic | 68 | 18 | 120 | 75 | 45 |
| Postoperative | 96 | 36 | 140 | 85 | 55 |

Operation: Dilation and curettage, hemorrhoidectomy, separation of adhesions, resection of right ovary, Simpson's suspension of uterus and appendectomy. Time: One hour and thirty-five minutes. Open drop ether anesthesia; amount, 13¾ fluidounces (406 c.c.).

While with the majority, by far, the blood pressure falls during the combined assaults of the anesthetist and the surgeon, yet there are some whose pressure rises even during prolonged major operations. The blood pressure record of such a case is shown in Table 3.

This patient, aged 38, gave a history of numerous epileptic convulsions during her eighteenth year; she had had none since.

Attention is directed to the rising pulse pressure under a plentiful amount of ether and severe traumatism over a considerable time.

Another patient, who gave no history of convulsions but had a severe one just before the abdominal operation was completed, and while the patient was under deep ether anesthesia, had a similar blood pressure record. I have had three similar cases, all in adults, that is, presenting no history of convulsions before or since, but severe epileptiform convulsions near the completion of long abdominal operations, with the patients deeply anesthetized and the blood pressure increased.

TABLE 4.—*Record of Patient with High Blood Pressure*

| | Pulse | Respiration | Blood Pressure: Systolic | Blood Pressure: Diastolic | Pulse Pressure |
|---|---|---|---|---|---|
| On admission | 80 | 20 | 248 | 132 | 116 |
| Preanesthetic | 134 | 22 | 275 | 160 | 115 |
| When anesthetic had been given for 5 minutes | .. | .. | 320 | 155 | 165 |
| When anesthetic had been given for 20 minutes | .. | .. | 240 | 140 | 100 |
| When anesthetic had been given for 30 minutes | .. | .. | 160 | 90 | 70 |
| When anesthetic had been given for 40 minutes | 96 | 36 | 170 | 120 | 50 |
| When anesthetic had been given for 55 minutes | .. | .. | 174 | 120 | 54 |
| When anesthetic had been given for 80 minutes | 96 | 22 | 206 | 106 | 100 |
| Four weeks later, when discharged from hospital | .. | .. | 225 | 115 | 110 |

Operation: Supravaginal hysterectomy for fibroids and bilateral salpingo-oophorectomy. Time: One hour. Open drop ether anesthesia; amount, 9½ fluid ounces (280 c.c.).

When the operation is minor and the anesthesia is light, it is not uncommon for the blood pressure to rise a few millimeters during the operation; but not so in long major operations and deep anesthesia. Likewise, prolonged and deep anesthesia ordinarily sup-

presses convulsions even in patients subject to such seizures.

The exciting cause of these convulsions has not been determined.

The patient, colored, aged 47, whose record is given in Table 4, was kept in the hospital for six weeks under special treatment before operation. The circulatory diagnosis was hypertension, arteriosclerosis, cardiac hyperthrophy and aortic insufficiency—compensation moderately impaired. There also was chronic interstitial nephritis and the Wassermann reaction was ++++.

It will thus be seen that this report includes surgery on handicapped patients.

### SUMMARY

1. The majority of surgical patients show an elevation of blood pressure on entering the hospital, and a still greater increase just before the anesthetic is administered.

2. To establish the normal blood pressure often requires several observations over a period of time; but, unless the normal is established, the figures may be grossly misleading.

3. A fall in pressure usually follows deep anesthesia of some duration and severe traumatism. In the cases in which convulsions occurred, this rule was reversed.

4. The best means used for combating shock and hemorrhage were the gum-glucose solution (250 c.c. administered at the rate of 4 c.c. a minute) and blood transfusion, the former as an emergency measure.

Bretton Hall, Eighty-Sixth Street and Broadway.

---

## PHYSICIANS, DENTISTS AND FOCAL INFECTION IN THE DAKOTAS

CHARLES FRANK MORSMAN, M.D.
HOT SPRINGS, S. D.

For some time it has been evident that there is a great divergence of views, among physicians and among dentists, in the diagnosis and treatment of infections of the jaws. To assist in clarifying this regrettable situation to some extent, I have sent a questionnaire to 1,042 physicians and 541 dentists, being all the men and women who represent the two professions in North Dakota and South Dakota.

With each copy of the questionnaire was enclosed a courteous letter, stating the reason for this study, together with a stamped, addressed envelop for reply. I received 219 replies from the dentists and 281 replies from the physicians.

### QUESTIONS

1. What is your opinion as to the extraction of a tooth that shows definite periapical or pericemental destruction?
2. Do you believe that a tooth, at the apex of which an abscess exists, should be extracted at once, or do you advise treatment?
3. Do you believe in root canal treatment?
4. Is a devitalized tooth necessarily a dead tooth?
5. Do you roentgenograph all teeth of which you are suspicious, or have it done for you?
6. Do you own and operate a roentgen-ray apparatus?
7. If you believe in root canal treatment, what roentgen-ray evidence do you recognize that differentiates between a tooth that must be extracted and one that may be treated?
8. What, if any, clinical signs indicate to you that a tooth must be extracted?
9. Do you believe that every area of rarefaction at the apex of a tooth, as shown by roentgen ray, excepting those produced by the mental foramen and antrum of Highmore, indicates periapical infection?
10. In pyorrhea, what extent of alveolar destruction indicates extraction?
11. Are the physicians and dentists of your locality agreed on the treatment of peridental infection?
12. Do you believe that the physician and the dentist should consult as to the proper treatment of the teeth of a patient in whom they are mutually interested?
13. Will physicians, dentists and patients all benefit from frequent consultations between physician and dentist?
14. How frequently in your locality do dentists and physicians consult as to the method of procedure when they are mutually interested in a patient who suffers from peridental infection?

### ANSWERS

The replies to these questions are given in the accompanying table.

*Summary of Replies*

| | | Tabulations | Physicians | Dentists |
|---|---|---|---|---|
| | Questionnaires sent | 1,583 | 1,042 | 541 |
| | Replies received | 500 | 281 | 219 |
| Question No. | Question | | Physicians Per Cent. | Dentists Per Cent. |
| 1 | Procedure with periapical or pericemental destruction? | | | |
| | Extract | | 69.7 | 84.4 |
| | Treat | | 7.2 | 9.1 |
| | Indefinite or no answer | | 23.1 | 6.5 |
| 2 | Procedure with abscessed tooth? | | | |
| | Extract | | 65.8 | 72.6 |
| | Treat | | 11.3 | 20.0 |
| | Indefinite or no answer | | 22.9 | 7.4 |
| 3 | Believe in root canal treatment? | | | |
| | No | | 40.9 | 29.1 |
| | Yes | | 33.9 | 70.9 |
| | Indefinite or no answer | | 25.2 | 00.0 |
| 4 | Devitalized tooth necessarily dead? | | | |
| | No | | 30.9 | 34.2 |
| | Yes | | 42.4 | 58.5 |
| | Indefinite or no answer | | 26.7 | 7.3 |
| 5 | Roentgenograph all suspicious teeth? | | | |
| | No | | 10.6 | 19.6 |
| | Yes | | 74.3 | 80.4 |
| | Indefinite or no answer | | 15.1 | 00.0 |
| 6 | Own roentgen-ray apparatus? | | | |
| | No | | 48.5 | 42.1 |
| | Yes | | 38.7 | 57.5 |
| | Indefinite or no answer | | 12.8 | 0.4 |
| 7 | Roentgen-ray evidence between extraction and treatment? | | | |
| | Rarefaction | | 10.6 | 45.1 |
| | Don't treat | | 40.9 | 29.3 |
| | Indefinite or no answer | | 48.5 | 25.8 |
| 8 | Clinical evidence denoting extraction? | | | |
| | General signs | | 10.3 | 1.4 |
| | Local signs | | 30.2 | 62.1 |
| | General and local | | 24.2 | 10.9 |
| | Indefinite or no answer | | 35.3 | 25.6 |
| 9 | Area of rarefaction proof of infection? | | | |
| | No | | 43.4 | 73.9 |
| | Yes | | 21.3 | 20.0 |
| | Indefinite or no answer | | 35.3 | 6.1 |
| 10 | Extent of alveolar destruction denoting extraction? | | | |
| | Less than one half | | 15.6 | 25.1 |
| | One half or over | | 10.3 | 41.5 |
| | Indefinite or no answer | | 74.1 | 33.4 |
| 11 | Are physicians and dentists agreed as to various questions of focal infection? | | | |
| | No | | 41.7 | 52.0 |
| | Yes | | 29.3 | 38.8 |
| | Indefinite or no answer | | 32.0 | 9.2 |
| 12 | Should physicians and dentists consult? | | | |
| | No | | 1.4 | 7.4 |
| | Yes | | 88.6 | 91.7 |
| | Indefinite or no answer | | 10.0 | 0.9 |
| 13 | Will consultations benefit patients, physicians and dentists? | | | |
| | No | | 2.1 | 2.3 |
| | Yes | | 86.1 | 96.3 |
| | Indefinite or no answer | | 11.8 | 1.4 |
| 14 | Frequency of consultations between physicians and dentists? | | | |
| | Often | | 41.6 | 51.1 |
| | Rarely | | 22.0 | 29.1 |
| | Never | | 10.0 | 6.5 |
| | Indefinite or no answer | | 26.4 | 13.3 |

### COMMENT

The dentists are not agreed among themselves on many diagnostic points or on methods of treatment. Physicians hold conflicting views as to diagnosis and treatment of infections of the jaws. The two groups,

as groups, are far from agreed in the important subject of focal infection.

Dentists and physicians, with few exceptions, have expressed their belief that much good will come from frequent consultations between dentists and physicians relative to patients in whom they are mutually interested. Practically all who have replied to this questionnaire have indirectly signified their willingness to hold such consultations.

Hot Springs Clinic.

## SUBDURAL FLUID ACCUMULATIONS FOLLOWING HEAD INJURY *

HOWARD C. NAFFZIGER, M.D.
SAN FRANCISCO

Subdural fluid accumulation after head injury seems to have escaped the comment of pathologists and surgeons.

This pathologic condition is one found with or without fissured fracture of the skull, and has not been noted in association with depressed fractures or penetrating wounds. It is an accumulation of subdural but extra-arachnoid fluid.

When a brain injury occurs, the immediate effects of damage are soon complicated by an increase in the fluid content within the skull. This fluid may be present as extravasated blood, as edema in which the fluid is more or less fixed in the swollen brain tissue, or as free fluid of other types. When present in considerable amounts, intracranial pressure results.

For the surgeon, a practical pathologic classification includes three groups: (1) The extradural hemorrhages—chiefly of middle meningeal origin. (2) The swollen, contused and edematous brains, which in appearance vary from the small petechial hemorrhages to the plum colored, lacerated and disorganized brain with varying amounts of free hemorrhage. (3) The subdural fluid accumulations. This group is of special interest and of considerable clinical importance, and has attracted no attention.

As to the type of case in which the third pathologic condition has been found, it has been noted frequently in individuals with high or dangerously increasing intracranial pressure. With it there is not infrequently a hemiparesis of varying degree.

Our judgment of intracranial pressure has been based on the usual clinical signs of slow pulse, high pulse pressure, stupor or unconsciousness, rising blood pressure, altered respiration and Traube-Hering cycles, or what seems often to be its clinical equivalent, even in the absence of other signs, namely, rhythmic recurring restlessness. Also the spinal manometer offers a method of exact estimation, when the patient is controllable so that the reading is accurate. After the first forty-eight hours, the ophthalmoscopic findings increase in importance and value. In decisions made several days after injury, the optic disks are of the greatest aid.

### SUBDURAL ACCUMULATIONS

In some patients, increasing signs of pressure have caused us to perform a subtemporal decompression. The dura has been tense. When it is nicked with a knife blade, a jet of fluid has spurted out. This fluid is often water clear, but may be slightly tinged by fresh or old blood. The pressure is often sufficient to send a jet to the operator's shoulder. It pours out in large quantities. When the dura is then widely opened, it will be seen that in the uncomplicated cases the brain shows no gross evidence of injury. Careful exploration with a brain spoon beneath the dura, toward the frontal, parietal and occipital lobes and downward beneath the temporal lobe, will show still more fluid, and the spoon will return partly filled. Examination of the subarachnoid space will show that it is sweating profusely. Gentle pressure with a cotton sponge on it, to press out the fluid, will be followed by a quick return when the sponge is removed. A total of 2 or 3 or more ounces may by these various procedures be removed. It will then be noted that the brain is no longer under pressure. There is no tendency for it to herniate through the bone and the dural opening. It may even fall away from the dura. This fluid has been collected, and, after examination, reported as yielding the usual tests for cerebrospinal fluid. At other times, fresh or old blood has altered its characteristics. It was not until this pathologic finding was noted repeatedly that the significant fact was impressed on us that this fluid was in an abnormal place, namely, in the subdural (and extra-arachnoid) space, which normally contains no fluid. From the appearance of the brain and the profuse sweating in the subarachnoid spaces, even after this extra-arachnoid fluid is removed, it would seem that there is also damming back in these spaces.

It is worthy of emphasis that these subdural collections of fluid seem to represent a definite clinical group. Subdural fluid may be and is, sometimes, found with a slight degree of brain contusion or with some hemorrhage. Its presence, however, without other discernible pathologic changes, makes it of particular interest. It is common, in addition to the general intracranial pressure, for a hemiparesis to be present. The subdural fluid accumulation is often the only finding at operation. Removal of this, followed by forty-eight hour drainage, yields most gratifying results, not only in relieving the general pressure, but also in that the hemiparesis disappears often as satisfactorily as after the removal of a large extradural clot. Certain intracranial fluid increases are often loosely referred to as edemas. A sweating brain or free fluid should not call forth such a term, as much confusion has arisen from it. In true edema of the brain, the fluid is more or less fixed in the tissue, as contrasted with such free fluid in the subarachnoid. A truly edematous brain is often dry on the surface.

The subdural fluid collections seem to represent normal fluid in an abnormal location. They are not in any sense edemas. It is possible that in true edema, following contusion, there may be interference with the normal circulation and absorption of the cerebrospinal fluid. In the group at hand, however, the fluid has passed from the basal cisternae up over the cerebral hemispheres, but is extra-arachnoid. No normal communications between the subdural and subarachnoid spaces are known. It seems necessary, then, to presume that the injury has caused tears in the arachnoid, through which cerebrospinal fluid has passed, and into a space from which there is little or no absorption.

### METHODS OF REMOVAL

The question naturally arises, Why not remove the fluid by a spinal puncture or by repeated punctures rather than by operation? It is to be remembered that by spinal puncture we drain the subarachnoid space, not

* From the division of neurologic surgery, University of California Hospital.

the extra-arachnoid or subdural one. Spinal puncture might remove fluid so that there would be less to become subdural, but it is not likely that the subdural fluid would be removed. We do feel, nevertheless, that in such cases there is temporary benefit by the removal of fluid from the spinal canal. In the milder cases, it may be all that is necessary. If, however, the benefit is very temporary following such punctures and after frequent withdrawal of large amounts, a small subtemporal opening with drainage will yield more permanent and satisfactory results, and it would seem that this is certainly preferable, particularly in the presence of a hemiparesis. Subdural fluid accumulations yield us some of our most satisfactory results, and in this regard are in the same category with the extradural hemorrhages.

The condition has been encountered in the first hours after injury as well as later days. In one instance, pressure increased up to the seventh day after injury, and caused us to perform a subtemporal operation. A clear subdural collection of several ounces was present.

Subdural accumulations of this type have been seen only after injury. The exact mechanism involved in their production is not proved, but they are common. Many such cases can be tided over, possibly, by repeated spinal punctures, but in the severe cases subtemporal decompression and drainage give better results.

380 Post Street.

---

# ARRESTED DEVELOPMENT OF THE COLON *

ROBERT L. RHODES, M.D.
AUGUSTA, GA.

J. E. Thompson,[1] in 1919, said:

> Every operator expects the viscera to occupy normal positions, and, if he fails to find the organ he is searching for, he hunts for it where previous experience has taught him he is most likely to find it. If he has been carefully trained in embryology, he will know beforehand where to look and what to observe; but if not, he will probably begin a ramble over the greater part of the abdominal cavity, which may end disastrously for the patient.

The most frequent abnormalities of the abdominal viscera are the intestinal, and result from arrested development of the colon in embryonic life. Recalling that the cecum, when first developed to the point of recognition in the embryo, occupies a position just above and to the left of the umbilicus, and that in the process of development, it rotates approximately 180 degrees and moves across the upper abdomen and downward, along the course occupied by the transverse and ascending colon in the fully developed individual, it is obvious that its progress may be arrested at any point in this course and the corresponding abnormality result. The extremes, then, would be, on the one hand, a complete arrest of development with the cecum in the embryonic position, and, on the other, a simple arrest in development or descent of the appendix or cecum and appendix.

The adherent retrocecal appendix is possibly the simplest maldevelopment of this group, and, by clinical observation, we have learned that this type of appendix is associated with a somewhat different chain of symptoms from the classical so-called "dyspepsia," flatulence, constipation and "intestinal indigestion" being prominent. The less descent of the appendix or, expressed otherwise, the higher the appendix, that is, the nearer the level of the liver or the gallbladder, the more difficult is the differential diagnosis between appendicitis and cholecystitis or even renal lesions, when the appendix is firmly fixed in close proximity to the ureter. At the other extreme, if there is complete arrest with the appendix above and to the left of the umbilicus, an acute attack of appendicitis may simulate pancreatitis, perforating gastric ulcer, etc. On opening the abdomen in such a case, one is instantly impressed by finding the small intestine entirely on the right side of the abdominal cavity and the large bowel on the left, with the splenic flexure in practically normal position and anchorage.

The value of case reports [2] was recently discussed in THE JOURNAL as follows:

> The only way we can learn about rare conditions is by the accumulation of data provided by each of the several persons who have observed instances of them. No one case gives the whole picture, but when we have accumulated enough separate views we can reconstruct a working model of the process. The success with which this can be done depends largely on the accuracy and clearness of each of the several exposures.

This, as previously stated, has been largely accomplished as regards arrested descent of the appendix, and it is improbable that any definite symptoms may be attributed to the arrested colon per se, but only in conjunction with the appendix as the acutely or chronically inflamed structure. However, if one bears in mind these anomalies, it will prove of inestimable value not infrequently in differential diagnosis, in the plan of attack, and in the explanation of the findings encountered, and hence to scientific accuracy. Does abnormality predispose to disease? Certainly we know that undescended testes are more prone to disease, such as inflammation or malignant degeneration, than the normally placed. We attribute volvulus of the sigmoid to an elongated mesentery, either congenital or acquired. In the adherent retrocolic appendix, we frequently find the walls of the terminal several inches of ileum thickened. This we believe is due to muscular development incident to a greater force being required to propel the contents into the cecum, and to the fact that a partial obstruction is encountered at the ileocecal valve. Operations under local anesthesia have revealed at this juncture a torsion movement in association with the peristaltic wave. Does such an anomaly, especially when stimulated by irritation, as in ileocolitis, predispose to intussusception or other forms of intestinal obstruction? It is only by accuracy of observation and the recording of facts that the answer to such questions will be forthcoming.

A. F. Jonas [3] and W. C. Gardner [4] have recently recorded observatins of undescended cecum and appendix, but the literature is conspicuously lacking concerning developmental anomalies of the colon.

## REPORT OF CASES

CASE 1.—O. S., a boy, aged 13 years, illustrated the atypical symptoms from the high appendix. The cecum had been arrested at a point just above the level of the umbilicus; the appendix was retrocolic and adherent throughout except the

---

* Read before the first group meeting of the Alabama, Florida, Georgia, Louisiana and Mississippi Sections of the American College of Surgeons, Birmingham, Ala., March 2, 1922.

1. Thompson, J. E.: Surgery and Embryology, Surg., Gynec. & Obst. 31: 18 (July) 1920.

2. The Value of Case Reports, Current Comment, J. A. M. A. 78: 285 (Jan. 28) 1922.

3. Jonas, A. F.: Undescended Cecum and Vermiform Appendix, J. A. M. A. 76: 1821 (June 25) 1921.

4. Gardner, W. C.: Nondescent of the Cecum and Appendix, J. A. M. A. 77: 1652 (Nov. 19) 1921.

proximal half inch; the tip was on a level with the costal margin, and had perforated with the development of an abscess, completely walled off by the ascending colon. The onset was sudden, nine days before admission to the hospital, with pain around the umbilicus. There was no nausea or vomiting, except after one dose of medicine. The next day, the pain moved to the right hip and leg and to the right flank, high up. There was never any pain over McBurney's point—opposing the assertion of Pottenger that appendicitis should always refer its pain to a fixed point. The temperature reached 103 F and the pulse 120 and continued to do so daily.

When seen in the hospital, the patient was lying on his back with the thigh sharply flexed, and he could not straighten it without pain referred to the hip and thigh, not to the abdomen. The abdomen was not distended, and there was no tenderness or rigidity of the left half or of the right side below the level of the umbilicus. In the upper right there was tenderness and rigidity, with a well defined abscess palpable even in the flank. The cecum or colon could not be found below the abscess. The white blood count was 15,000. Under the diagnosis of a high retrocolic appendical abscess, with the cecum and appendix either arrested or drawn up by the abscess, the operation was performed through a split muscle incision, about 3 inches higher than the usual gridiron; the abscess was opened from the lower outer side of the colon; the contents were evacuated; the appendix was freed and removed, and drains were placed in position. The cecum was not rolled under the colon, as is sometimes seen, but was in normal relationship, except that its descent was arrested about 3 inches above its normal position. Convalescence was uneventful, and the patient was discharged on the eighteenth day.

CASE 2.—M. H., a girl, aged 6 years, was admitted to Wilhenford Hospital with an arrested cecum and intussusception of the appendix, with partial intestinal obstruction. The onset had been three weeks previous with paroxysmal pain around the umbilicus at intervals of ten to fifteen minutes. Vomiting was at times associated with the attacks of pain. There had been no fever. The bowels had moved daily by means of laxatives or enemas. The attacks would last several hours, and then would follow a period of cessation, as long as forty-eight hours. The patient was not seen by a physician until two weeks had elapsed, when Dr. W. T. Freeman discovered a small mass in the right upper abdomen, and brought her to see Dr. W. A. Mulherin, with whom I saw her in consultation. The temperature was 100.6 F. and the pulse 120. The abdomen showed a mass, about 2 inches in diameter, just below the level of the right costal margin and apparently behind the cecum; it was freely movable and only a trifle tender. There was very little spasm of the rectus muscle. The colon and cecum could not be made out below the mass, and there was no tenderness or muscle spasm below, over McBurney's point or elsewhere. Peristalsis was hyperactive and, at times, seemed to end abruptly in the region of the mass. The bowels had moved well that day and again while she was in the office; the stools showed nothing abnormal. The white blood count was 17,500, with 85 per cent. polymorphonuclears. The urine showed one plus albumin, and four plus acetone. The diagnosis was made of an arrested cecum with an appendical abscess, walled off around the cecum and not involving the parietal peritoneum, and producing partial obstruction at the ileocecal junction. In spite of urging, the parents refused to have an operation performed and took the child home. The attacks of pain became more frequent, and were almost continuous during the last three days before she was brought to the hospital, one week after she was first seen by us. Vomiting had been frequent, and she was in much poorer condition, being quite dehydrated; but the abdomen showed no change. The white blood count was 25,000. She was given a large quantity of fluid overnight and enough opiate to secure rest, and was in a much better condition for operation the next morning.

An upper right rectus incision freely exposed the high cecum through which the mass could be palpated; the omentum was nowhere near. When the cecum was carefully lifted, the tip of the appendix came into view, and next the mass, which consisted of an incompletely invaginated appendix with infiltration of the surrounding cecum, so placed as to act like a ball valve at the ileocecal junction. Attempts to reduce the invagination were unsuccessful, and resection of the infiltrated cecum could not be done without encroaching too nearly on the ileum. It was decided to try to strip out the mucosa of the appendix after the manner of skinning a rat's tail, and this was cautiously done by making a circular incision around the base of the exposed portion of the appendix down to the mucosa, after which the invaginated muscular and peritoneal coats were more forcibly manipulated and reduced. The appendix was removed along with a small block of edematous cecum surrounding its base, and the opening was closed with a purse string suture of silk reinforced with several mattress sutures. The ascending colon was only about 2 inches long, and the ileum from the cecum passed straight downward into the right iliac fossa, its walls quite thickened at the terminal end; but proximad the walls gradually thinned so that, 8 inches distant, they were normal in thickness. Convalescence was uninterrupted, and the child was discharged one week later, and has had no trouble since.

CASE 3.—H. H., a boy, aged 16 months, was admitted to Wilhenford Hospital suffering from complete arrest of the colon, with intussusception of unusual extent. The history of this case is very incomplete because of the ignorance and prejudice of the parents. The child probably had ileocolitis for two or three weeks, during which time he was seen and treated by several different physicians. Five days before admission to the hospital, he developed a mass just above and to the left of the umbilicus; vomiting increased, and blood and mucus were passed by bowel, but no fecal matter. The next day, the mass was farther to the left; it was rather freely movable, and gradually moved downward over the left side of the abdomen, and vomiting became stercoraceous. The parents refused to take the child to the hospital. Three days later, another physician saw it and succeeded in persuading them to go. On admission, the child was moribund, with a distended, rigid abdomen and a mass about 4 inches in diameter in the left lower quadrant. The diagnosis of intussusception with diffuse peritonitis was made. With the history of the course of the mass, the possibility of an embryonic colon was discussed, but we did not have the temerity to make such a diagnosis. Permission for necropsy was sought, since the child was obviously near the end, but it was refused; permission for operation, however, was readily granted, and was undertaken more in the nature of an antemortem examination than with the idea of being able to do anything for the child. Through a left rectus incision, a large quantity of free pus and intestinal contents was evacuated from the abdominal cavity. The small bowel was entirely on the right side of the abdomen. Exposure of the mass revealed an intussusception into the sigmoid, which had sloughed in several areas, and, through one of these, the appendix was presenting. The entire large bowel was necrotic, and tore under the gentlest touch. It was at once obvious that nothing short of resection could be done, even as a palliative. Connecting the several sloughed areas by splitting open the intervening bowel, we were able to reduce the intussusception sufficiently to replace the bowel in its former, or usual, place, which was that of the embryonic position—the cecum just above and to the left of the umbilicus with the ileum entering from the right side. The intussusception consisted of the following gangrenous bowel: 12 inches of ileum, the cecum, and the rudimentary colon (entire) into the sigmoid, where necrosis and sloughing took place. It is readily apparent that normally placed bowel could not have undergone such an extensive intussusception. Resection of the gangrenous bowel and anastomosis of the ileum to the sigmoid was hurriedly done, but the child died as the dressing was being applied.

COMMENT

Even though we may not be able to "reconstruct a working model," since not all types of cases lead to that end, our scientific interest should be sufficiently keen to seek always an explanation for rare or unusual findings, and our observations of value to others should be recorded, that there may be lessened the number of rambles "which may end disastrously for the patient."

Lamar Building.

# THE CARDIAC DISTURBANCES ASSOCIATED WITH DISEASES OF THE THYROID GLAND*

FRANK N. WILSON, M.D.
ANN ARBOR, MICH.

There are two diseases of the thyroid that we can dispose of very quickly. The smooth, uniform enlargement of this gland which occurs so frequently in children and in young people, particularly in young women, in this region and everywhere about the Great Lakes, and which appears to be due to a lack of iodin in the food and water, does not produce heart disease. Myxedema and hypothyroidism are very frequently associated with hypertension, nephritis or arteriosclerosis, or with a combination of these,[1] and consequently with the type of cardiac disturbances to which they give rise.

Most of the cardiac abnormalities produced by thyroid disease occur in those toxic states in which there is an elevation of the basal metabolic rate. So far as the disturbances of the cardiovascular system are concerned, there is little difference between typical exophthalmic goiter and so-called "adenoma with hyperthyroidism." It is convenient in discussing the cardiac aspects of these conditions to distinguish between primary disturbances of the heart and secondary disturbances of the heart. Under the former heading, we include those cardiac symptoms and signs which occur invariably, or almost invariably, in severe cases of thyrotoxicosis, and which may be considered, therefore, cardinal manifestations of thyroid intoxication. Under the second heading, on the other hand, we include those cardiac abnormalities which, because of their relative infrequency, or because their frequency and intensity do not vary directly with the intensity of the other symptoms of the primary disease, may properly be looked on as complications.

## PRIMARY DISTURBANCES

Of the primary disturbances of the heart, sinus tachycardia and the evidences of overactivity of the heart associated with it are the most common. It has been shown that the increase in heart rate is more or less proportional to the elevation of the basal metabolic rate. According to Sturgis and Tompkins,[2] a resting pulse rate of 80 is rarely, and a pulse rate below 90 is seldom, associated with a basal metabolic rate above plus 15 per cent. In a given individual, variations in the basal metabolic rate are quite closely paralleled by variations in the heart rate. Different individuals with the same percental increase in basal metabolic rate may, however, show resting heart rates that are quite unlike. The same factors that are responsible for the wide range of the normal heart rate, and probably also for variations in the manner in which individual hearts respond to demands for increased blood flow, are no doubt the cause of these differences. In judging the severity of toxic thyroid disease, the resting pulse rate is undoubtedly a better guide, the basal metabolic rate excepted, than any other single sign or symptom. Aub and Stern[3] have shown that in complete heart block the administration of thyroid substance increases the auricular, but not the ventricular rate, which indicates that the thyroid hormone exerts its effect on the heart rate through nervous channels.

The tachycardia of thyroid intoxication is accompanied by other cardiovascular phenomena. The heart appears to beat with unusual suddenness and violence; the heart sounds are often unusually loud, and a soft systolic murmur is commonly heard at the apex or in the pulmonic area, less often in the aortic area. The violent apex beat is frequently accompanied by a pseudothrill and by vibration of the chest wall, extending beyond the left border of the heart, so that a diagnosis of cardiac enlargement or of mitral disease is often erroneously made. The pulse is large, and there is exaggerated pulsation of the peripheral arteries, and, frequently a capillary pulse. These vascular signs are somewhat like those of aortic insufficiency, but, although large pulse pressures are the rule in toxic goiter, the diastolic pressure is high, whereas in aortic insufficiency the diastolic pressure is low. There are also special vascular phenomena in the region of the enlarged gland; violent pulsation of the thyroid vessels accompanied by thrills and murmurs is common.

Similar vascular phenomena occur in normal persons after severe exertion, and it is probable that they are due chiefly to a greatly enhanced metabolic rate. That the minute output of the heart and the metabolic rate are greatly increased by exertion has been sufficiently demonstrated, and although the circulation rate has not been actually determined in toxic goiter, a total blood flow more or less proportional to the metabolic rate is undoubtedly maintained. It is clear, therefore, that the elevated basal metabolic rate so characteristic of toxic goiter must greatly increase the work of the cardiorespiratory system. Plummer and Boothby[4] have shown further that there is a decreased mechanical efficiency in toxic goiter, in that the performance of a given amount of work demands a greater expenditure of energy than is required under normal conditions. This places an additional burden on the heart and lungs. A patient with exophthalmic goiter has a high basal metabolic rate; the pulmonary ventilation and the amount of blood that the heart must pump are correspondingly increased. When the patient exercises, we must add to these already greatly increased requirements not only the increase in pulmonary ventilation and cardiac output that the exercise ordinarily demands, but also an extra amount, because of the abnormal energy waste.

It is not surprising, therefore, that many sufferers from thyroid intoxication complain of dyspnea and other symptoms of cardiorespiratory weakness. Such symptoms may be produced in normal persons by sufficiently strenuous exertion, and by an amount of exertion that places no greater demands on the heart and lungs than does moderate or slight exertion in patients with toxic goiter. Slight dyspnea on exertion, palpitation, and abnormal fatigability cannot under such circumstances be regarded as definite evidence that the heart muscle has been injured by the disease. Whether slight swelling of the ankles, which is common in these patients, may, in the absence of signs of circulatory stasis, be so considered, is also questionable. We know too little of the many factors that cause edema to speak

* From the department of internal medicine, University of Michigan Medical School.
* Read before the American Association for the Study of Goiter, Bloomington, Ill., Jan. 24, 1924.

1. Fishberg, A. M.: Arteriosclerosis in Thyroid Deficiency, J. A. M. A. **82**: 463 (Feb. 9) 1924.
2. Sturgis, C. C., and Tompkins, E. H.: Study of the Correlation of Basal Metabolism and Pulse Rate in Patients with Hyperthyroidism, Arch. Int. Med. **26**: 467 (Oct.) 1920.
3. Aub, J. C., and Stern, N. S.: Thyroid Extract and Heart Block, Arch. Int. Med. **21**: 130 (Jan.) 1918.
4. Plummer, H. S., and Boothby, W. M., quoted by McCann, W. S.: Medicine **3**: 76.

with confidence; it is quite possible, for instance, that the altered metabolism of the tissues may predispose to its occurrence.

Many patients with toxic goiter who complain of dyspnea on exertion have vital capacities within the normal range: further evidence that their breathlessness is not necessarily the result of cardiac damage. Others show a subnormal vital capacity and, if the change from normal is conspicuous, the heart is probably weak in proportion to the demands made on it.

Of the phenomena enumerated, none, unless it be edema or a greatly reduced vital capacity, can be considered reliable evidence of damage to the heart. Nevertheless, the absence of other signs does not necessarily mean that the heart has escaped injury. It is probable that few patients who have had toxic goiter for any considerable period of time have entirely normal hearts.

### SECONDARY DISTURBANCES

Of the cardiac complications of thyrotoxicosis, enlargement of the heart is one of the most important. So far as the clinical examination is concerned, there is nothing about it that is characteristic. The roentgen-ray examination usually shows a globular enlargement without distinctive features. The electrocardiogram is most often normal, but the signs of left ventricular preponderance are by no means rare; abnormal right ventricular preponderance is rarely seen. The enlargement of the heart is probably due chiefly to dilatation resulting from cardiac weakness. As to the frequency and degree of hypertrophy, we have little exact knowledge. It might be supposed that the greatly increased work of the heart in toxic goiter would almost invariably lead to a conspicuous increase in the muscle mass, and undoubtedly such an increase is not infrequently present. L. D. Wilson [5] reports that in twenty-one cases of toxic goiter which came to necropsy some degree of hypertrophy was noted in sixteen instances. In two instances, the heart weighed more than 500 gm. and was unquestionably hypertrophied. In the other instances there was from 5 to 10 per cent. increase in the heart weight. It is very questionable whether an increase in heart weight no greater than this can be considered significant. Herrmann and Wilson [6] found that in persons without postmortem evidence of cardiac, vascular or renal disease, the ventricular weight-body weight ratio varied between 0.00170 and 0.00390 (average value, 0.00292). A study of a like series of cases reported by Lewis gave similar figures. In view of the fact that the weight of the ventricles freed of fat and all nonmuscular tissue must be less variable than the heart weight, as usually determined, it is hardly justifiable to look on an increase in heart weight of less than from 30 to 50 per cent. as reliable evidence of cardiac hypertrophy. In one of our recent cases of fatal toxic goiter, the ventricular weight-body weight ratio was 0.00283, and the relative weight of the two ventricles was also within normal limits. The symptoms were of four years' duration, and the patient had suffered from cardiac failure for two months preceding admission to the hospital. The basal metabolic rate was plus 41 per cent. Toxic goiter does not, therefore, always lead to cardiac hypertrophy.

Our knowledge also of the myocardial changes produced by thyroid intoxication is meager. In eighteen of the twenty-one cases studied by L. D. Wilson,[5] the muscle fibers were pale, with indistinct striations and "lipoidal" changes. Whether the latter were more conspicuous than in patients dying at similar ages from other diseases, the author had not determined at the time of the report. Goodpasture [7] states that fatty degeneration is the most common change seen in the heart muscle in fatal cases of toxic goiter. He has reported also the occurrence of diffuse necrosis of the heart muscle, and has shown, experimentally, that although thyroxin alone produces only focal necrosis and perivascular fibrosis in rabbits, it renders the heart more susceptible to injury by chloroform. Small amounts of the latter, though without effect on normal animals, may induce widespread necrosis of the heart muscle in animals that are receiving thyroxin. It is possible, therefore, that the cardiac complications of toxic goiter are the result of a combination of factors, and that thyroid intoxication makes the heart susceptible to injury by agents that are normally without effect on it.

Clinical evidence of myocardial changes in toxic goiter is by no means rare. Of the disturbances of the mechanism of the heart beat, sinus arrhythmia and extrasystoles, compared to their incidence in other diseases that damage the heart, are comparatively uncommon. These irregularities are likely to occur only when the heart rate is comparatively slow and the sinus tachycardia of toxic goiter tends to prevent their occurrence. Atrioventricular heart block and intraventricular heart block are occasionally observed. Even when the tendency of the former to disappear when the heart rate is elevated is allowed for, they are much less common than would be anticipated were extensive and diffuse myocardial injury, such as occurs in rheumatic fever and diphtheria, a common event in severe thyrotoxicosis. But, if the type of myocardial injury which produces heart block is rare, that which gives rise to auricular fibrillation and auricular flutter is decidedly common. The former is by far the more frequent, and in a large percentage of the cases it is transient or paroxysmal. It is particularly common after goiter operations; in so-called postoperative thyroid shock, it is likely to be associated with an extreme acceleration of the ventricular rate. Persistent auricular fibrillation is unquestionably dependent on relatively permanent changes in the myocardium; this is shown by its tendency to return after it has been abolished by quinidin. Paroxysmal fibrillation probably depends on a similar, though perhaps less serious, myocardial injury. Transient fibrillation, on the other hand, is probably more often due to temporary myocardial changes, either structural or physicochemical. In some patients with toxic goiter, attacks of auricular fibrillation may accompany periods of increased toxemia, and they are sometimes brought on by exertion or excitement.

### TREATMENT

It is the general opinion that, in fibrillation complicating toxic goiter, the ventricular rate is less easily controlled by digitalis medication than in fibrillation in other types of cardiac disease. This opinion is in some measure justified. It is often impossible to reduce the ventricular rate appreciably, when fibrillation occurs in association with "postoperative thyroid shock"; we have given intramuscularly as much as 15 c.c. of a proprietary digitalis preparation, an amount of the drug which usually has a conspicuous effect, within a period

5. Wilson, L. D.: Tr. A. Am. Phys. **38**: 144, 1923.
6. Herrmann, G. R., and Wilson, F. N.: Heart **2**: 91 (April) 1922.
7. Goodpasture, E. W.: J. Exper. Med. **34**: 407, 1913.

of a few hours, without reducing the ventricular rate more than a few beats a minute. Many patients with auricular fibrillation and toxic goiter, however, respond just as well to digitalis therapy as other fibrillators. Others respond poorly, sometimes because even small amounts of digitalis produce prolonged nausea and vomiting, and sometimes because the amount of digitalis that produces these symptoms, though large, is insufficient to reduce the ventricular rate to the level desired. Digitalis reduces the ventricular rate in auricular fibrillation chiefly through its effect on the vagus center; in toxic goiter, the vagal tone is undoubtedly low, and this is a disadvantage in the digitalis treatment of fibrillation.

Also the question of the desirability of reducing the ventricular rate to between 60 and 70 a minute, the goal aimed at in ordinary cases of fibrillation, when the demands placed on the heart are increased by an elevated basal metabolic rate, has been raised. I believe that unless the heart rate is reduced to approximately this level, when possible, the full beneficial effects of digitalis will not be obtained. Rates much higher than this when the patient is at rest are likely to become excessive when he exercises. No accurate studies of the total blood flow in toxic goiter have been made, but we judge from the recent studies of Meakins, Dautrebande and Fetter [8] on the blood flow in mitral stenosis that although an increase in heart rate is invariably, or almost invariably, accompanied by an increase in total blood flow when the rhythm is normal, the opposite is the case when the auricles are fibrillating. In the absence of the observations on total blood flow that would enable us to determine the optimal ventricular rate in auricular fibrillation, it seems best to follow the practice suggested by ordinary clinical observation and attempt to reduce the ventricular rate to between 60 and 70 a minute under resting conditions.

Since auricular fibrillation associated with toxic goiter is often of the transient form, and since it is very often present in patients who have relatively mild cardiac failure, quinidin therapy might be expected to give excellent results. Regarding the frequency with which quinidin abolishes fibrillation in toxic goiter as compared with fibrillation in other types of heart disease, very little accurate information is available. In our rather meager experience, conspicuous successes and conspicuous failures have been about equally numerous. In a very few cases of postoperative fibrillation in goiter patients, small doses of quinidin, single doses of 5 or 10 grains (from 0.3 to 0.6 gm.) have been followed promptly by cessation of the abnormal rhythm. In cases in which the ventricular rate is very high, we have hesitated to give the drug, on account of the increase in ventricular rate that it usually produces. It may be noted here that Wenckebach believes that, even when the rhythm is regular, both quinin and quinidin have a tendency to quiet the excessive throbbing of the heart, of which the majority of patients with toxic goiter complain.

Of the purely electrocardiographic signs of myocardial injury in toxic goiter, inversion of the T deflection in Leads I and II is the most common. The exact significance of this sign is still doubtful. Nevertheless, if the effects of digitalis, which regularly produces inversion of the T deflection, can be ruled out, it is a reliable sign of myocardial changes, and probably has some prognostic value.

In view of the great number of patients with toxic goiter that are admitted to hospital wards, the severer grades of heart failure, such as lead to great dyspnea or orthopnea, severe chronic passive congestion of the lungs, liver and kidneys, and conspicuous edema, hydrothorax and ascites are comparatively rare. Death resulting purely from the cardiac complications of toxic goiter is also, in our experience, relatively uncommon. It is true that, in so-called postoperative thyroid shock, auricular fibrillation, with extreme ventricular tachycardia and indications of cardiovascular collapse, are seen; but necropsies in such cases usually show severe degenerative changes in the liver and other parenchymatous organs, indicating death from profound toxemia. It is probable that death results in such instances from overwhelming intoxication, in which the heart suffers along with the other vital organs.

Milder grades of cardiac weakness are not infrequent, and should be treated exactly as under other circumstances, by rest; morphin when necessary to relieve dyspnea or insure complete rest and sleep; digitalis in amounts sufficient to produce its characteristic effects, and a proper diet. The diet should be designed to meet the caloric requirements, or, perhaps, for the first few days, to fall somewhat below them; it should contain only sufficient protein to prevent a negative nitrogen balance, and should be poor in salt.

### EFFECT OF GOITER ON HEART

As to whether adenomatous goiter without hyperthyroidism may damage the heart, it is difficult to form an opinion. A great deal has been written of the so-called goiter heart of the endemic goiter regions of Europe. This has been attributed at various times to mechanical factors, such as compression of the trachea or blood vessels of the neck and upper mediastinum; to a special kind of thyroid toxemia, and to the factors thought to be responsible for the enlargement of the thyroid gland. Most of the observations on which these theories, now largely if not wholly abandoned, were based were made before the days of metabolic rate studies, so that the part played by mild hyperthyroidism in this type of cardiac disease is difficult to estimate. It should be noted also that thyroid deficiency, which is common in endemic goiter regions, may also cause cardiac disease through its effect on the blood pressure, the kidneys and the arteries, and probably in other ways also. It is certainly true that many patients with thyroid adenomas of long duration but with normal basal metabolic rates at the time of observation have abnormal hearts. Dr. F. A. Coller [9] has recently reviewed a series of such cases, and finds in the succeeding decades of life an increasing percentage of cases with tachycardia, cardiac enlargement and disturbances of the heart's rhythm. It is, of course, impossible to say that no increase in the basal metabolic rate existed before the patient came under observation; nor is it possible to say that in a given patient past middle life the enlarged thyroid gland is responsible for cardiac abnormalities not of a distinctive type. It must be remembered that myocardial diseases are very common after middle age in nongoitrous people, as a result of vascular changes and other causes as yet unknown. Nevertheless, it is clear that a persistent enlargement of the thyroid gland, even though it be regarded as nontoxic at the time of the examination, is at least a potential menace to the myocardium.

8. Meakins, J.; Dautrebande, L., and Fetter, W. J.: Heart **10**: 153 (April) 1923.

9. Coller, F. A.: Personal communication to the author.

# THE RELATION OF ANAPHYLACTIC DISTURBANCES TO ARTHRITIS

JOHN A. TURNBULL, M.D.
BOSTON

Despite the great prevalence of arthritis, the destructive character of its lesions, and the incalculable amount of suffering and economic loss that it causes, the etiology of this widespread malady is still very much in doubt, and the foremost authorities fail to agree on any rational treatment by which its ravages may be controlled.

Animal experimentation has demonstrated that the early pathologic changes induced by arthritis are swelling and congestion of the synovial membrane, accompanied by increased growth and desquamation of the lining cells and infiltration of the membranes with lymphoid cells. This is soon followed by an exudation and, as the condition progresses, definite articular and periarticular changes take place, with the production of pain and limitation of motion, and the gradual increase of permanent deformity, which frequently results in the complete incapacity of the patient.

The different manifestations of arthritis have been variously classified, but it is rather difficult to adhere to any definite separation of types. Osteararthritis or arthritis deformans, may present acute, subacute or chronic manifestations, depending on whether the condition in the joint is infective, toxic or septic in origin, and on the virulence of the infecting micro-organisms. These manifestations may also be the result of an anaphylactic disturbance productive of changes in the articular or periarticular structures.

It is commonly accepted that certain individuls have a predisposition to joint affections, and those who attribute the occurrence of arthritic lesions to trauma base their opinion on the fact that the joints most exposed to injury are those most likely to be affected by arthritis, since, if trauma were the sole requisite for the production of joint affections, practically all living creatures would be subject to it. But, in the face of the fact that, prevalent as it is, arthritis is not universal, we are compelled to look further for the etiologic factor, and to pass under review all the possible exciting causes in our endeavor to elucidate the mystery that has so far baffled those who have attempted to prevent and cure this most destructive malady.

The first step should be a thorough search for all foci of infection. Transillumination and roentgenography should be brought into service to explore the nose and its accessory sinuses; the nasopharyngeal fossa should be searched for infected adenoid masses; the mouth should be systematically examined to reveal any pus pockets that may lie hidden beneath apparently sound and vigorous teeth. Special attention should be given both lingual and faucial tonsils, for it is not alone the prominent hypertrophied tonsil that should be looked on with suspicion. Frequently, small buried tonsils may be harboring infective foci, for overlapping pillars or adhesions due to some previous inflammatory process can easily prevent drainage, and result in the production of toxins from the retained bacteria, thus setting up an infection which is quickly carried by the blood stream to the remotest parts of the organism.

Of great importance is a thorough exploration of the gastro-intestinal tract. Though it is frequently asserted that arthritis is never due to pathologic conditions in this region, it was found by Fisher [1] that of seventeen cases studied post mortem, fifteen showed a focus of infection and two presented intestinal toxemia. It is my opinion that, given a preexistent susceptibility to arthritis, intestinal stasis, with or without an associated gastro-enteroptosis, may be a prominent etiologic factor in the production of arthritic or periarthritic changes. It should be remembered also that the genito-urinary tract may be harboring some sources of infection.

When a definite infective focus has been discovered and eliminated, it frequently happens that the patient will be quickly relieved of all arthritic symptoms, and, if the process has not been permitted to progress to irremediable deformity, permanent and satisfactory recovery will take place. Often, however, even the removal of all possible foci of infection will do little to ameliorate the distressing condition, or the most minute search will fail to reveal any source from which bacterial contamination could be derived. Our only resource now will be examination of the daily intake of food, in the endeavor to trace the path of infection by this route.

Dietary restrictions are by no means a new element in the attempt to control arthritis. For generations, medical tradition has handed down a regimen supposed to lessen the tendency to joint inflammations. There can be no hard and fast rules of diet laid down to fit all cases. Each patient is "a law unto himself," and every case must be studied individually, and the diet regulated according to its special requirements. In the cutaneous sensitization test, such as is used to determine the sensitivity to the proteins causing certain respiratory and cutaneous affections, we have a convenient and easily applicable means of finding out to just what articles of food the particular patient is sensitive, and in my personal experience the elimination from the diet of these foods has been quickly followed by improvement in the joint conditions. It has been proved that sensitization to certain proteins is productive of disturbance in the respiratory tract, such as asthma and hay-fever, or of the cutaneous surface, as in urticaria and eczema, and it seems logical to apply the same line of reasoning to the disturbances of the joints which we group under the common designation of arthritis, arguing that the continued action of bacterial or other proteins, either with or without the additional factors of trauma or movement of the inflamed joints, will eventually result in extensive injury to the cartilaginous and bony structures.

The question of diet in arthritis has been extensively studied, but apparently not from the point of view that I am here endeavoring to present. Fletcher [2] observed that in a great majority of his arthritis patients the sugar tolerance was markedly decreased; and, when this was the case, dietary restriction was more beneficial than it was to those patients whose sugar tolerance was normal. Following influenza, and, in one patient, after a tonsillectomy, sugar tolerance greatly decreased, a fact that he attributed to the presence of infection, which, in the postoperative case, was probably the relighting of an old focus. Scrutiny of the regular food intake of these patients revealed "excess of carbohydrate food," but "the addition of food rich in vitamin" was by no means always effective in relieving the arthritis, and this author was not able to hit on any

1. Fisher, A. G. T.: A Contribution to the Pathology and Etiology of Osteo-Arthritis, Brit. J. Surg. 10: 52 (July) 1922.
2. Fletcher, A. A.: Dietetic Treatment of Chronic Arthritis, and Its Relationship to the Sugar Tolerance, Arch. Int. Med. 30: 106 (July) 1922.

satisfactory explanation of the fact that restriction in diet was of so much benefit to some, and wholly ineffective with others, apparently presenting identical conditions. I am of the opinion that the application of the food allergy test would have made the whole situation perfectly clear.

This study of arthritis with the food allergens has been carried over a period of ten years, with numerous cases. Sixty per cent. of those studied have shown results similar to the following cases, and I feel that the percentage of results offers highly suggestive evidence of the importance of food allergy in the production of these conditions.

## REPORT OF CASES

CASE 1.—A married woman, aged 38, with no family history of arthritis, in 1919, first began to have arthritis in both knees, no other joints being affected until August, 1921, when she was bedridden for two months with a generalized acute "rheumatism," affecting all the joints of the upper and lower limbs, the larger ones being most severely involved, the condition in the hands and feet being less severe. There was especially severe pain on rotation of the cervical articulations. While this condition was most acute there was an accompanying diarrhea, with the passage of membranous casts sometimes 2 feet in length. As the acute arthritic condition subsided, the diarrhea continued, though in less violent form and with the passage of smaller casts. The intestinal condition was treated by a high colon lavage every other night, and a low enema every day, up to the time the patient came under my observation, four months later. At this time, she was so crippled that she needed assistance to enable her to rise from her chair. She gave a history of good health up to the age of 24, when, believing herself to be overweight, she had endeavored to reduce by dieting and hard work; since then she had always "felt tired." The tonsils had been completely enucleated in 1920, and roentgenography and transillumination had failed to reveal any foci of infection in the sinuses or the mouth. The patient herself had observed that the ingestion of any quantity of chocolate always exacerbated the "rheumatism." The joints were painful, tender and swollen, and crepitation in both knees was marked.

The application of cutaneous tests led to the detection of all the sensitive foods, and they were eliminated from the dietary. The high colonic irrigations were discontinued, and, three weeks later, the patient returned to the office unassisted, reporting that the bowels now moved but twice daily, except that every fourth day movements would be increased to three or four. There was still slight crepitation of the knees. Two months later, the periods of increase in the number of bowel movements occurred only once in seven days, and crepitation had entirely disappeared. After another month of adherence to the restricted diet, all manifestations of diarrhea disappeared, as well as the "rheumatism," and so long as the patient adheres strictly to the prescribed diet there is no return of symptoms.

CASE 2.—A single woman, aged 52, whose father, mother and maternal aunt all suffered from arthritis, complained of enlargement of the phalangeal joints of the hands, first noted four years before examination, the affected joints being red, swollen and tender, and the periarticular swelling so great as to prevent the distal ends of the fingers from approximating closer than half an inch. Two years before, there began to be pain in the region of the second and third dorsal vertebrae, evinced on bending the head backward or forward, accompanied by swelling and tenderness of the tissues over the vertebrae. Six months before, the right knee became involved, with pain, swelling and crepitation on movement.

As the tonsils had been completely enucleated and the teeth exonerated by roentgenography from harboring infective foci, cutaneous tests were applied, and all reacting foodstuffs eliminated from the diet. Within three weeks, pain ceased, the affected parts were no longer sensitive to pressure, and the swelling subsided in all the joints, the phalanges returning to normal, so that the fingers could once more be approximated.

CASE 3.—A married woman, aged 63, whose mother's sister had arthritis, noticed, nine years before examintion, that her feet tired easily and swelled on walking. This condition grew progressively worse, being exacerbated by an attack of lumbago six years before, following which the hands also became affected. One year before, the knees, shoulders and elbows began to be involved in the process, although the condition in the larger joints was not so severe as that in the ankles and feet, and the hips were not involved.

Examination showed considerable exostosis of the phalangeal articulations, with swelling and thickening of the articular tissues, especially in the right ankle, at the external malleolus and at the articulation of the fibula and the astragalus. Constipation was present, and there was complaint of intestinal discomfort and "gas" which bore no relation to the ingestion of food. Only the lower central and incisor teeth remained, and as these were in bad condition, showing evidences of pyorrhea, they were ordered extracted and the sensitizing foods ascertained and forbidden. Within four weeks, pain decreased in all the joints; swelling subsided within six weeks; in eight weeks' time, all swelling and tenderness had disappeared, the patient being able to walk without discomfort. After four months' freedom from arthritis, she overstepped her dietary restrictions by indulging in turkey, potato and squash, all foods to which she gave a positive cutaneous reaction. Within five hours, she experienced pain in all the formerly affected joints, walking became difficult, and there was generally bodily "aching." This condition was relieved in forty-eight hours, when the sensitizing proteins had been eliminated from the system.

## COMMENT

In the consideration of these three cases, it is noticeable that all the patients were women, and that the age of the onset of arthritis represents the third, fourth and fifth decades in life. There is no uniformity in the manner of onset, nor any indication of a predilection for any especial type of joint. Case 1 began in the large joints, which continued throughout to be those chiefly involved, while in Case 2, the small joints were those mostly affected, and in Case 3, the affection was largely confined to the feet and hands.

The fact that two out of three family histories revealed relatives affected with arthritis offers evidence in favor of a hereditary tendency to this affection, which corresponds to the findings made in family histories of patients suffering from such anaphylactic disturbances as hay-fever or angioneurotic edema, there being one family on record [3] in which five generations were known to have been affected with the last-named disease.

In two cases there had already been a systematic search for infective foci, but in the third case, the presence of a bad oral condition may be considered as a possible contributory factor in the arthritic condition. In two cases also, intestinal disturbance was a noticeable feature; but whether the intestinal condition was a predisposing cause, or was induced by the same etiologic factors that set up the joint condition, or whether it was the result of the action of sensitizing food on the alimentary canal, which, in view of my hypothesis, I consider most probable, cannot be definitely determined.

## CONCLUSIONS

Arthritis may be due to an infectious process secondary to some focus of infection.

If no original focus can be demonstrated in the organism, cutaneous tests should be applied to determine what sensitizing proteins are being ingested in the diet which can be held accountable for the existing arthritis.

The elimination of such offending articles of food from the dietary has in the cases cited been followed by the prompt remission of symptoms, and failure to

3. Crowder, J. R., and Crowder, T. R.: Five Generations of Angioneurotic Edema, Arch. Int. Med. 20: 840 (Dec.) 1917.

adhere to the dietary limitations has immediately reproduced the conditions that had been abolished by the avoidance of such sensitizing foods.

491 Commonwealth Avenue.

## THE BASOPHILIC AGGREGATION TEST IN LEAD POISONING

PRELIMINARY REPORT *

CAREY P. McCORD, M.D.
DOROTHY K. MINSTER, A.B.
AND
MATHILDE REHM, A.B.
CINCINNATI

The testing of the blood in lead poisoning by the basophilic aggregation method is based on the fact that the developmental period of red cells within bone marrow may be interrupted under conditions of physiologic need or pathologic changes in the bone marrow. These conditions that make demands on the bone marrow lead to the appearance in the peripheral circulation of red cells in varying stages of immaturity. The nucleated red cell is characteristic of marked immaturity. The transition to maturity is marked by the extrusion from the red cell of a single highly refractile body, recently described by Isaacs.[1]

### CHARACTERISTICS OF YOUNG ERYTHROCYTES

In addition to these two characteristics, other qualities serve to distinguish these young erythrocytes from old ones.

The premature red cell is usually larger than the mature one in the same preparation.[2]

Immature red cells contain a basophilic substance, the nature of which is not fully known.[3] In the unaltered young cell this basophilic material is ordinarily evenly distributed throughout the hemoglobin-bearing portion of the cell. Following vital or nonvital staining, the same basophilic substance may appear as punctate stippling, fragmented stippling, polychromatophilia, or as cell reticulation.[4]

These young cells are more resistant to crenation than more mature erythrocytes.[3]

The hemoglobin content is less in developing cells.

An increased resistance to sodium chlorid hemolysis is accepted by Luzzatso and Ravenna,[5] as marking the youth of red cells. This has not been borne out by the work of Pepper and Peet.[6]

A tendency exists among premature cells to adhere closely to one another or to white cells.[3] This stickiness may have some relation to the process of erythrocyte delivery from the bone marrow into the general circulation.

The undeveloped cell appears to consume oxygen, while the adult erythrocyte is not known to consume oxygen.[7] Cytologically, therefore, the adult erythrocyte is not a living cell, while the developing erythrocyte is to be regarded as living.[3]

### BASOPHILIC SUBSTANCE [8]

With any tissue having so many distinguishing markings as indicated above, it should prove readily possible to devise some test to measure the occurrence of this tissue, either qualitatively or quantitatively, or both.

Of all the characteristics of young cells, the presence of basophilic substance appears to be most constant, and the one that lends itself best to the demonstration of immature cells. This basophilic substance is not known to occur in any cells other than blood and bone marrow cells.

Occasionally this basophilic material is found as punctate stippling, preformed in the blood. From 30 to 70 per cent. of lead poisoning cases present this blood alteration, varying according to the experiences of different observers. Ehrlich and Grawitz [9] maintained that red cell basophilia is diagnostic of plumbism. Anything over 100 preformed stippled cells per million red cells has been regarded as proof positive of this condition. Since other anemias exhibit the same preformed stippled cells in such proportions, this diagnostic specificity is not warranted. Nevertheless, it is a common practice in the determination of lead poisoning to examine blood smears, stained by the Wright's method, for these preformed stippled cells. Diagnostic significance is attached if even four preformed stippled cells in 100 microscopic fields are detected. Such punctate stippling is also found in other industrial poisonings, such as from anilin and nitrobenzene.

Often this pathologic stippling is missing and the basophilic substance is evenly distributed throughout the cell, and is not readily detectable after ordinary staining methods. After Wright's staining of blood smears it is frequently noted that some cells are slightly dissimilar to the main group. Such cells may be larger and so take the stain as to appear more deeply stained in the same color as the main group, or may take on violet or bluish tints. These are termed polychromatophilic cells. Rarely do these cells stand out boldly. In addition to the polychromatophilic cells, which are easily detected after staining by the Wright or similar methods, there may be other cells containing basophilic substance but in such quantities that they are not easily detected.

It is obvious, therefore, that if this basophilic material is to be utilized as the basis for a laboratory test, some means must be found for bringing this substance into greater visual prominence, such as the clumping of this evenly distributed material. Whatever test is devised must be a quantitative one since, under normal conditions, a few young cells can be found in the circulation. Except in very rare cases, a normal person will present no preformed stipple cells or nucleated red cells, but may present up to 1 per cent. of cells containing basophilic material. In the new-born, as high as 20 per

* From the Department of Preventive Medicine, University of Cincinnati College of Medicine (M. R.), and the Industrial Health Conservancy Laboratories (C. P. M. and D. K. M.).

1. Isaacs, Raphael: Properties of Young Erythrocytes in Relation to Agglutination and Their Behavior in Hemorrhage and Transfusion, Arch. Int. Med. **33**: 193 (Feb.) 1924.
2. Biffi, H.: Bull. Soc. Med. Ann. **79**: 8, 1908, quoted from Key (Footnote 3).
3. Key, J. A.: Studies on Erythrocytes, with Special Reference to Reticulum, Polychromatophilia and Mitochondria, Arch. Int. Med. **28**: 511 (Nov.) 1921.
4. Hawes, J. B.: A Study of Reticulated Red Blood Corpuscles by Means of Vital Staining: Its Relation to Polychromatophilia and Stippling, Boston M. & S. J. **161**: 493, 1909, quoted from Key.
5. Ravenna, F.: Sulla resistenza della emazie granulose nelle soluzioni choro sodiche; Lavori e riviste di chimica e microscopia clinica, **1**: 325, 1909, quoted from Pepper and Peet (Footnote 6). Luzzatso, A. M., and Ravenna, F.: Sue fenomeni di autoliai nelle emazie granulose, Folia, clinicia, chemica et microscopia, 1919-11, **3**: 53, 1919, quoted from Pepper and Peet.
6. Pepper, O. H. P., and Peet, M. M.: The Resistance of Reticulated Erythrocytes, Arch. Int. Med. **12**: 81 (July) 1913.
7. Harrop: Oxygen Consumption of Human Erythrocytes, Arch. Int. Med. **23**: 745 (June) 1919, quoted from Key.
8. Because of the confusion in the use of such terms as reticulated cell, mitochondrial cell and polychromatophilic cell, by different hematologists, we have sought to avoid the defining of the relation between our "basophilic aggregation" and these disputed blood forms. We have merely associated it with the broader term, "basophilic substance." We emphasize that this is a preliminary report. Further work is necessary to establish these relationships.
9. Ehrlich and Grawitz, cited by Oliver, T.: Lead Poisoning, Sources Symptoms and Treatment, in Kober and Hayhurst, Industrial Health, Philadelphia, P. Blakiston's Son & Co., 1924, p. 420.

cent. of the red cells may be basophilic.[6] Any test, therefore, must take into consideration this normal content, and under pathologic conditions must demonstrate numbers larger than the normal.

The work that we have carried out appears to lead to the clumping of all the basophilic material in young cells. Stippled cells are created in vitro and appear in large numbers, when no or few stippled cells would appear when stained with ordinary methods. Such stippled cells as appear after Wright's staining are preformed in the blood and may be observed in fresh, unstained preparations. The stippled cells seen in the basophilic aggregation test are not preformed in the blood but are entirely due to the artificial aggregation of the evenly distributed basophilic substance found in young cells.

In order to distinguish between the preformed punctate stippled cells referred to previously, and the stippled cells created by our methods, we have designated the latter "basophilic aggregations," and will refer to them as such throughout. The essence of this test is the greater visibility of cells containing basophilic substance.

## PREPARATION OF MATERIAL; TECHNIC

The basis of our work is the hemolysis of the red cell prior to staining.[3] Blood smears from the patient are made in the usual way under the usual precautions of cleanliness, etc. No effort, however, is made to secure thin smears. As the hemoglobin is to be withdrawn, it becomes possible to see through many layers of cells. The method, therefore, is a thick drop method. Hemolysis may be carried out with distilled water or hypotonic salt solutions, after which staining may be obtained with almost any of the basic coal tar dyes. In actual practice, we utilize Manson's methylene blue, which is prepared in the following manner: Five grams of borax is dissolved in 100 c.c. of boiling distilled water, to which is then added 2 gm. of methylene blue. This stain deteriorates by the end of one month, and certain lots have for unknown reasons proved unreliable. Instead of hemolyzing the blood corpuscles prior to staining, we dilute a small quantity of the Manson's stain with distilled water until the stain is transparent. The unfixed slide is then stained for ten minutes. The staining is so slow under these conditions that hemolysis precedes staining. After air drying, the slides are examined microscopically, the oil-immersion lens being used. In cases of lead poisoning, it is common to find twenty-five or more basophilic aggregations in a single field, as shown in the accompanying illustration. Preparations from the same patient, made at the same time, and stained with Wright's stain may show only a few preformed stippled cells in the entire slide.

It is our belief that the minute, invisible basophilic particles are aggregated into coarser masses, as a result of hemolysis. This is borne out when the blood is fractionally hemolyzed with diminishing concentrations of hypotonic sodium chlorid solutions. In those tubes in which corpuscles are exposed to the action of such concentrations of sodium chlorid as 0.35 and 0.3 per cent., the number of stippled cells is much larger than in such concentrations as 0.6 and 0.5 per cent. Ravenna[5] reports that, in the sediment from the tube containing 0.5 per cent. sodium chlorid solution, only 3 per cent. of the cells presented "skeined forms," while the tubes containing 0.32 per cent. sodium chlorid solution revealed 86.9 per cent. "skeined" corpuscles. When hemolysis is fractional, the red cells become much swollen, and the basophilic substance is definitely arranged at the periphery and assumes the general appearance of a "string of beads."

On microscopic examination, the slides stained by this hemolyzing methylene blue method have the following characteristics: In some preparations, the red cell membrane is visible and the basophilic granulations are observable within these membranes. In other instances the red cell membrane is not visible. All types of white blood cells and blood platelets are recognizable. The granules tend to arrange themselves at the periphery. In many instances, the groups of granules are much distorted and lead to the conception that they have been extruded from the cell body in the process of hemolysis. The size of the granule varies markedly in different preparations and even within a single cell. When the red blood cells are much larger than normal, the basophilic aggregations are apt to be arranged definitely at the cell periphery.

## RELATED WORK

Under the designation "post vitam method," dilute methylene blue solutions have been used in the staining of wet film preparations for the detection of punctate red cells.[10] Under the designation "thick drop method," the procedure introduced by Ross for the examination of malarial blood has been recommended by Schilling[11] for ascertaining basophils in lead poisoning. Analogous work has been carried out by Schwarz,[12] Schwarz and Hefke,[13] Seiffert,[14] Engel,[15] and others.

## STANDARDS

Since about 66 per cent. of normal individuals may exhibit an occasional basophilic aggregation after this hemolyzing stain, it is obvious that the mere detection of such cells in individuals suspected of lead poisoning is without significance. It is necessary to establish some quantitative relation. For our work we have adopted a crude set of quantitative standards. A definite source of error arises from the fact that our thick drop smears cannot be made with uniform thickness. None the less, in our experience the following scoring system has proved of value:

| | |
|---|---|
| + | Few cells containing basophilic aggregations on entire slide. |
| + + | Cells containing basophilic aggregations on average of 1 in every 5 fields. |
| + + + | Cells containing basophilic aggregations in approximately every field. |
| + + + + | Four cells containing basophilic aggregations in approximately every field. |
| + + + + + + | Six cells containing basophilic aggregations in approximately every field. |
| + + + + + + + + + + | Ten or more cells containing basophilic aggregations in every field. |

10. Gilbert, A., and Weinberg, M.: Traité du sang, p. 146, quoted from Sellers, A.: Blood Changes in Lead Workers, J. Indust. Hyg. **2**: 367 (Feb.) 1921.

11. Schilling, V.: Anleitung zur Diagnose in dicken Tropfen, Jena, 1920, quoted from Schwarz and Hefke (Footnote 13).

12. Schwarz, L.: Concerning Blood Examinations in Cases Suspected of Lead Poisoning, Med. Klin. **22**: 659 (May 29) 1921; Blood Examination in the Thick Drop Method in Cases Suspected of Lead Poisoning, Zentralbl. f. Gewerbehyg. **9**: 192, 1921.

13. Schwarz, L., and Hefke, H.: Sources of Error in the Early Diagnosis of Lead Poisoning, Deutsch. med. Wchnschr. **49**: 7 (Feb. 16) 1923.

14. Seiffert, G.: Method of Blood Examination for Lead Poisoning, München. med. Wchnschr. **69**: 46 (Nov. 17) 1922.

15. Engel, H.: Microscopic Blood Examination of Lead Workers, München. med. Wchnschr. **69**: 626 (April 28) 1922.

### MATERIAL FOR CLINICAL OBSERVATION

The occurrence of a number of cases of lead poisoning in a local storage battery plant has afforded us an opportunity to examine forty-eight lead workers. In this battery factory, work conditions were generally favorable to the production of lead poisoning. The outstanding hazard was found in the "pasting" department. In this work, a paste of lead oxid and litharge is forced into the interstices of small lead grids. After chemical treatment, these grids become the positive and negative plates found in storage batteries. The process, as carried out, in this plant involves frequent exposure to lead dusts. In addition, lead is carried into the mouth through eating or smoking, at times when the hands are covered with lead paste. Lesser hazards were found in the assembling department, where certain lead parts were fused together with acetylene torches, and in the molding department, where lead parts were cast. Because of the lack of supervision in such processes as mixing lead oxids, or sweeping, practically every person in the entire plant was exposed to lead.

Of the forty-eight workers coming to our attention, ten exhibited lead poisoning in such severe form that they lost time from factory work and were treated in hospitals or in their own homes.

TABLE 1.—*Basophilic Substance in Normal Persons*

| Subject | Age | Basophilic Aggregations |
|---|---|---|
| S. H. | 37 | — |
| M. F. R. | 63 | + |
| S. A. O. | 27 | — |
| D. M. | 27 | — |
| B. S. | 65 | ++ |
| R. K. | 24 | ++ |
| W. R. | 24 | — |
| C. P. M. | 37 | + |
| D. K. | 19 | + |
| J. D. | 23 | + |
| C. D. | 19 | + |
| A. S. | 66 | ++ |
| A. L. C. | 55 | + |
| C. K. | 40 | + |
| J. S. | 56 | — |
| L. B. | 21 | + |
| M. R. | 24 | — |
| F. P. | 30 | + |

A second group composed of eleven workers presented a few of the characteristics of lead poisoning. These are classed by us as "lead absorption cases." Although it proved possible to keep these employees at work, under treatment, they are regarded by us as mild cases of lead intoxication, in the majority of instances.

In a third group termed "lead exposed workers" there were twenty-seven exployees. In this group have been placed employees in the wood-working department, office workers and new employees, together with a number of long exposed workers in hazardous departments who have presented neither clinical nor laboratory evidence of any lead involvement.

In addition to the groups indicated above, laboratory examinations have been made on eighteen known normal persons and twenty-nine hospital patients suffering from conditions in no way associated with lead poisoning. A total of 201 examinations have been carried out on ninety-five persons.

### FINDINGS FROM LABORATORY EXAMINATIONS

In Table 1 we have recorded the findings as to basophilic aggregations in the blood of normal persons. In no single instance have normal persons averaged more than one basophilic aggregation per five oil immersion fields examined. The blood of these normal persons was in some instances stained with Wright's stain. At no time, have preformed stippled cells or polychromatophilic cells been found. Although the number of normal persons examined is small, the percentage showing some basophilic substance coincides with Schwarz's figure of 66 per cent. Under the rating scale devised by us, we are disposed to place the upper limit for normal persons at two plus.

TABLE 2.—*Basophilic Substance in Disease Conditions Other Than Lead Poisoning* *

| Patient | Age | Diagnosis | Basophilic Aggregations |
|---|---|---|---|
| C. E. | 64 | Polycythemia | +++ |
| S. | 42 | Gallstones | — |
| M. C. | 14 | Subacute nephritis | — |
| H. D. | 74 | Chronic nephritis | + |
| C. W. | 64 | Diabetes | + |
| W. G. | 45 | Tabes, secondary anemia | ++++ |
| D. | 35 | Acute nephritis | + |
| M. | 49 | Acute arthritis | — |
| C. | 30 | Pneumonia | + |
| H. | 25 | Pneumonia | ++ |
| T. | 21 | Syphilis | + |
| D. | 37 | Tuberculosis | ++ |
| G. | 54 | Gastric ulcer | + |
| T. | 38 | Tuberculosis, peritonitis | ++++++++++ |
| K. | 41 | Hanot's cirrhosis | + |
| P. | 6 wks. | Premature baby | + |
| J. | 1 | Eczema, anemia | +++ |
| C. S. | 4 | Severe burns | +++ |
| M. | 4 mos. | Malnutrition | +++ |
| E. S. | 2½ | Gastro-intestinal | + |
| A. U. | 6 | Enlarged tonsils | + |
| J. M. | 30 | Infected finger | — |
| D. | 43 | Amputation of hand | ++ |
| H. | 47 | Hernia | ++ |
| F. V. | 55 | Gallstones | + |
| J. R. | 35 | Fibroids | ++ |
| C. B. | 37 | Anemia | ++++ |
| A. U. | 39 | Gastritis | + |
| T. S. | 28 | Hysteria | + |

* Some of these patients were examined at the Cincinnati General Hospital through the courtesy of Dr. Roger Morris.

TABLE 3.—*Basophilic Substance in Definite Lead Poisoning*

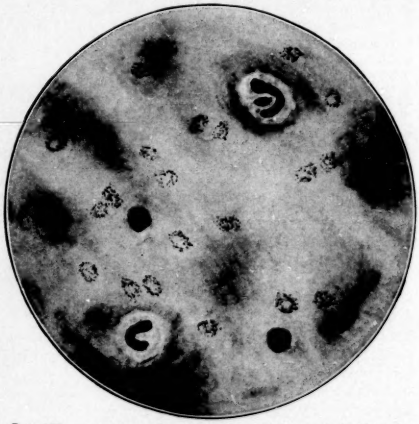
| Patient | Age | Period of Exposure to Lead | Diagnosis and Principal Manifestations | Basophilic Aggregations |
|---|---|---|---|---|
| J. M. | 21 | 5 mos. | Plumbism. Lead colic, pains in joints | ++++++++++ |
| P. V. | 47 | 3 mos. | Plumbism. Lead colic, cachexia, constipation, wrist weakness | ++++++++++ |
| H. E. | 19 | 3 mos. | Plumbism. Lead colic, wrist weakness, lead line | ++++++++++ |
| A. W. | 18 | 2 mos. | Plumbism. Lead colic, nausea, joint pains | ++++++++++ |
| T. D. | 22 | 4 wks. | Plumbism. Lead colic, nausea, weakness, constipation, vertigo | ++++++++++ |
| R. M. | 45 | 5 mos. | Plumbism. Lead colic, lead line, constipation, weakness | ++++++++++ |
| E. E. | 23 | 2 mos. | Plumbism. Lead colic, loss of appetite, constipation | ++++++ |
| R. W. | 18 | 3 mos. | Plumbism. Lead colic, loss of appetite, vertigo, weakness, nausea | ++++++ |
| W. T.* | 45 | 10 yrs. | Plumbism. Lead colic, under treatment in hospital for 1 month | ++++++ |
| F. E.* | 26 | 6 wks. | Plumbism. Lead colic, constipation, loss of weight | ++++++++++ |

* White-lead workers.

In Table 2 we have recorded findings from the blood examination in disease conditions other than lead poisoning. In charting this material, it has not been possible to include any extensive part of the divers clinical findings. We have merely noted the outstanding diagnostic point. In all conditions that involved anemia, the basophilic aggregation test has been high.

The only case, however, that has been as positive as the usual frank lead case was the one of peritonitis associated with tuberculosis. Since this test is regarded as a measure of the young blood cells thrown into the circulation, it may be expected that in any anemia or allied condition this test will be positive. There is thus some reason to believe that this test may be utilized in a variety of diseases other than lead poisoning.

In Table 3 are recorded the findings from definite cases of lead poisoning. All of these cases except three have presented basophilic aggregations in excess of 10 per oil-immersion field. Some of these patients were known to have suffered from lead poisoning for several weeks prior to any treatment. In other instances, treatment had been in process for more than two weeks, when smear preparations were made. In about one half of these definite lead cases, preformed stippling was readily established after Wright staining. In a few others, only after considerable search was stippling



Basophilic aggregations after hemolyzing staining method; blood from patient with lead poisoning; diagrammatic.

found after Wright staining. In a few, no stippling was present. In all, polychromatophilic cells were found.

In Table 4 are noted the numbers of basophilic aggregations found in a group of borderline cases. These persons have exhibited one or two of the early characteristics of lead poisoning. It is our practice to place such persons on antilead treatment without waiting for the development of unquestionable lead findings. It is our opinion that the majority of these patients present incipient cases of plumbism. A few may present suggestive clinical findings, whose origin may, however, be in no way connected with lead. With one exception, all these borderline cases present basophilic aggregations in excess of the normal (two plus). If the basophilic aggregations are in excess of four plus, we feel warranted in instituting antilead treatment even if clinical manifestations are absent.

In Table 5 we have charted the basophilic aggregation test findings from a group of workers, none of whom had presented, up to the time of this compilation, clinical manifestations of plumbism. Among those workers exposed to hazardous processes, the number of basophilic aggregations found is roughly proportional to the length of exposure. We regard this increased number of basophilic aggregations as evidence of beginning lead absorption. It is noteworthy that increased basophilic aggregations may occur after only two weeks' exposure. The finding of this increase should in every instance lead to the institution of mild lead eliminating treatment.

TABLE 4.—*Basophilic Substance in Borderline Cases of Lead Poisoning (Lead Absorption)*

| Patient | Age | Period of Exposure to Lead | Diagnostic Signs and Symptoms | Basophilic Aggregations |
|---|---|---|---|---|
| B. M. | 45 | 3 mos. | Lead line, occasional pains in joints | +++ |
| C. F. | 18 | 5 mos. | Pallor, constipation, loss of appetite | ++ |
| J. G. | 37 | 4 mos. | Lead line, headaches | ++++ |
| W. G. | 20 | 13 mos. | Slight lead line, weakness | ++++++ |
| M. H. | 30 | 20 mos. | Slight lead line, constipation | ++++++ |
| M. C. | 17 | 4 mos. | Vertigo, nausea | ++++ |
| J. R. | 25 | 4 yrs. | Gastritis, pallor | ++++ |
| A. B. | 21 | 5 mos. | Anemia | ++++++++++ |
| R. D. | 26 | 10 mos. | Anemia, weakness | ++++ |
| E. B. | 19 | 7 mos. | Headaches, vertigo | ++++ |
| C. E. | 21 | 2 mos. | Constipation, nausea | ++++++++++ |

COMMENT

This basophilic aggregation test as used by us is not pathognomonic of lead poisoning. It is regarded as a measure of the precocious introduction of red cells into the circulation. The blood of healthy persons in about 66 per cent. of our examinations contains a few of these basophilic aggregations that serve as the criterion for this test. A variety of disease conditions having no connection with lead poisoning lead to the occurrence of these aggregations. This is particularly true of conditions involving anemia. On a quantitative basis, clinical cases of lead poisoning regularly exhibit a high basophilic aggregation content of the blood. From our

TABLE 5.—*Basophilic Substance in Workers Exposed to Lead (No Clinical Manifestations)*

| Subject | Age | Period of Exposure to Lead | Basophilic Aggregations |
|---|---|---|---|
| W. F. | 42 | 7 yrs. (in office) | ++ |
| C. E. | 40 | 5 days | + |
| E. F. | 25 | 2 weeks | + |
| J. M. | 33 | 2 weeks | + |
| M. R. | 23 | 2 weeks | ++ |
| B. G. | 20 | 3 days | + |
| W. R. | 23 | 2 weeks | ++++++ |
| G. M. | 30 | 2 weeks | ++ |
| W. B. | 16 | 2 weeks | +++ |
| L. B. | 35 | 3 weeks | — |
| R. W. | 19 | 1 week | ++ |
| H. K. | 30 | 3 months | +++ |
| H. L. | 18 | 2 months | +++ |
| W. W. | 24 | 3 months | — |
| R. P. | 18 | 7 weeks | +++ |
| W. V. | 30 | 4 weeks | +++ |
| C. S. | 23 | 2 weeks | ++ |
| E. E. | 23 | 3 weeks | ++++ |
| E. S. | 28 | 2 weeks | + |
| R. F. | 19 | 3 weeks | +++ |
| W. M. | 34 | 2 weeks | ++ |
| L. S. | 19 | 6 days | + |
| W. H. | 42 | 6 weeks | +++ |
| L. B. | 36 | 6 weeks | ++++ |
| L. G. | 17 | 5 weeks | ++++ |
| L. C. | 19 | 5 months | — |
| H. S. | 18 | 3 months | + |

experience and as charted by us, the majority of lead-exposed workers quickly come to have a higher basophilic aggregation count than is found among normal persons. To us, this indicates a preclinical plumbism. If, in the routine physical examination of these lead workers, which is required by law in many states, it is established that the basophilic aggregation count is increasing, such workers, with or without clinical manifestations of lead poisoning (in the absence of other

diseases), should be placed on lead-eliminating or lead-controlling treatment. In our work we institute treatment for all workers whose rating is six plus or higher, according to the standard devised by us. With additional clinical evidence of plumbism arising from our physical examinations, we feel warranted in beginning treatment when the basophilic aggregation rating is four plus. We believe that we are thus, to some extent, anticipating and warding off the severe clinical manifestations of plumbism.

34 West Seventh Street.

## APOPLEXY OF THE BREAST

REPORT OF CASE *

ELLIOTT C. CUTLER, M.D.
BOSTON

This report concerns the unusual occurrence of copious hemorrhage into the breast without antecedent trauma, tumor or other local disease. Reference to the condition cannot be found in the literature. Hemorrhage into cysts of the parenchymatous tissue of the breast does occur, and blood cysts associated with papillomas have been reported. Even such lesions, however, are uncommon. In this case a large series of microscopic sections failed to reveal any pathologic changes suggesting tumor, and trauma seemed to be ruled out by the fact that the lesion appeared while the patient was in bed, convalescing from a light case of bronchopneumonia.

### REPORT OF CASE

*History.*—Mrs. M. B., aged 55, a widow and the mother of three children, was referred to me by her physician, Dr. D. C. Dennett of Winchester, Mass., because of a discolored mass that appeared in the left breast during the course of convalescence from a light attack of bronchopneumonia.

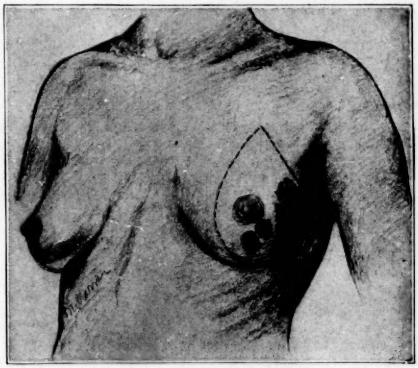
The past history revealed nothing of interest. The patient had led an active, vigorous life, and from the period of children's diseases, the names of which she could not remember, until she broke her ankle, a year previous to this illness, had seen little of physicians. She was sure she had never had scarlet fever. For some years, however, she had been troubled with a vague type of indigestion, consisting chiefly of heartburn and some gaseous eructations, and occasionally with attacks of pain under the right costal margin. With several of such attacks there had been nausea and vomiting, but these occurrences had disturbed her little and had caused no anxiety. She had never been jaundiced.

The condition for which she sought relief appeared first as a small, bluish discoloration just above the left nipple two days after she had been allowed to get up from bed after a light case of bronchopneumonia. The discoloration was noticed by her physician when he was going over the chest and examining the lungs. He noticed that there was a small lump just beneath the region of the nipple at that time, and the next day, that the lump was larger and that the discolored area had extended to the region below and external to the nipple. No glands were felt in the axilla, but he thought that the nature of such a lesion in a woman of 55 should be definitely determined, and therefore referred her to the hospital for examination and treatment. There had been no pain associated with the onset or course of the disease.

*Examination.*—The patient was stout, well developed and of healthy appearance. The head, extremities and abdomen were normal. Examination of the thorax showed rather large, pendulous breasts and a discolored area below and external to the left nipple, evidently an underlying hematoma. Palpation of this region revealed a considerable mass in the breast substance. This mass lay at the edge of the pectoral muscle; it was firm and irregular, and about the size of a pigeon's egg. It was not attached to the skin or to the underlying muscle, and it was not tender. There were no glands palpable in the axilla. The discoloration was irregular; there was an area about the size of a fifty-cent piece below and just medial to the nipple, and a larger discoloration covering practically the entire outer third of the breast, as indicated in the accompanying illustration.

Examination of the heart showed no increase in size; the sounds were regular and of good quality; there were no murmurs. The systolic blood pressure was 230; diastolic, 120. These limits were repeatedly found by different observers. The lungs showed a few râles in the lower right chest; no other pathologic changes were noted.

Roentgen-ray studies of the thorax, kidneys and gallbladder revealed nothing abnormal. The laboratory studies of the urine showed a urine consistently normal, with specific gravity around 1.016, no albumin, no sugar, and rarely a white blood corpuscle. The phenolsulphonephthalein output was 55 per cent. Blood studies revealed: hemoglobin, 90 per cent.; white blood corpuscles, 17,200; red blood corpuscles, 4,464,000; polymorphonuclear leukocytes, 77 per cent.; lymphocytes, 19 per cent.; mononuclear leukocytes, 2 per cent.; eosinophils, 2 per cent. The red blood corpuscles and the platelets appeared normal. The bleeding time and coagulation time were normal.



Area occupied by hematoma, and line of incision.

It seemed that we were dealing with a case in which there was obvious hemorrhage into the left breast. The rapidity of onset of the lesion, the absence of trauma, the age of the patient and the physical findings led us seriously to question whether the lesion could be malignant disease. The only other outstanding finding was the consistently high blood pressure, and the possibility that the indigestion symptoms were associated with some cardiac condition. Under these circumstances, it seemed wisest to watch progress of the lesion for a definite period before taking any definite step. After a week's rest in bed with daily observation, it was evident that although the discoloration was rapidly disappearing from the breast, a small mass remained in the left outer quadrant that became increasingly discrete and separate, and that this mass could be identified as a definite structure. There was, however, no retraction of the skin and no evidence of fixation to the underlying muscle, nor did palpable glands develop in the axilla. As we had no previous knowledge, at that time, of such a thing as apoplexy occurring in the breast, it seemed reasonable to presume that we were dealing with an early parenchymatous tumor of the breast, because of which, and probably into which, hemorrhage had occurred. Operation was therefore advised and accepted.

* From the surgical clinic and pathologic laboratory of the Peter Bent Brigham Hospital.

*Operation and Result.*—April 9, 1923, twelve days after the first appearance of the discoloration, under gas-oxygen preceded by 0.015 gm. of morphin, the breast itself was excised first, a skin incision being used that could be followed by a radical and complete dissection of the axilla if further and microscopic study justified this. On removal of the breast, it was carefully gone over by the pathologist, Dr. S. B. Wolbach, and multiple cross-sections for gross study were made. No abnormal tissue leading to even a suspicion of tumor could be found. The wound was closed, and the patient made an entirely satisfactory, immediate recovery. Nine days later, the patient was discharged from the hospital with the wound entirely healed and in good condition.

*Pathologic Examination.*—Dr. Wolbach reported that the specimen consisted of a left breast and two small portions of pectoral muscle. The pectoral muscle was considerably traumatized, and there was hemorrhage between the fibers. It was difficult to say how much of this was due to trauma. One of the pieces of pectoral muscle seemed somewhat firmer than normal and had a white streak running through it. The breast weighed 560 gm. It was covered by a diamond-shaped piece of skin, 20 by 11.5 cm. On the inferior surface of this piece of skin was a discolored area, the discoloration being blue, red, yellow and green, as occurs in disintegration of blood; it measured about 10.5 by 4.5 cm. In addition to this there was discoloration about the nipple, and leading up to the upper surface of the breast was a streak of some type of discoloration measuring 2 by 6 cm. On sectioning the breast tissue proper, one saw hemorrhage infiltrating the breast in all directions, separating the lobules of fat tissue. The area in which the original tumor was felt was very firm and hard. This area measured 2.5 cm. in diameter. It was made up of the same type of fat tissue, except that in this area there were areas of fat necrosis. It was thought that the reaction of the fat entirely explained the firmness of the tissue.

Frozen section was not made, because it was not possible to determine the site of any tumor, if any existed. Pieces of various portions of the breast and pectoral muscles were fixed in Zenker's solution. It may be said that the breast was markedly involuted. There were no cysts. The only possible conclusion was that a hemorrhage was the sole lesion.

There were six different sections, including one of the pectoral muscles and five areas of breast tissue. Microscopically, they all showed extensive hemorrhage, recent and old. The muscle showed extensive recent hemorrhage with separation of its fibers and areas of waxy degeneration, which must have existed before the day of operation. Besides fresh blood, there was a considerable amount of fibrin deposited between the muscle bundles, and organization of the hemorrhage was just beginning in a few places. Arteries of large size were normal. Numerous veins of small size showed a proliferation of the intima, and the majority of the small veins showed heavy infiltration of the walls with polymorphonuclear leukocytes. Capillaries between the muscle fibers frequently contained polymorphonuclear leukocytes in large numbers. These blood vessel changes, however, could probably be accounted for by partial stasis of circulation. The necrosis attending infectious lesions was absent. In the breast there were areas of fresh hemorrhage in fat and fibrous tissue. In both locations there were areas of hemorrhage undergoing organization. In numerous places the organization of the hemorrhage had progressed almost to cicatrization, and it did not seem possible that the date of onset as given by the clinical history could be right. Certain areas of cicatricial tissue contained many hemosiderin-laden phagocytes and certainly represented a process of more than one week's duration. At the periphery there was hemorrhage with the usual findings in a rapidly organizing lesion, no capillary formation but multiplication of fibroblasts and many mononuclear phagocytes. Some of the old areas with a thick zone of organization at the periphery showed dense fibrin in the interior. The blood vessel changes noted in the pectoral muscle were not nearly as prominent. Here and there, small veins showed infiltration of the walls. In one section, a vein of large caliber showed the entire circumference lined with a thin layer of fibrin, which in one place extended into the media. There was a slight reaction on the part of the endothelium, with partial investment of the mural thrombus. In three sections there were groups of atrophic glands, such as are customarily found in an involuting breast. In one such area there was a recent infiltration of blood. The arteries were practically normal throughout the breast tissue. In spite of the repeated study of these sections, the pathologic change could be summed up as recent and old hemorrhage. A few arteries of size in the breast and muscle tissue seemed to exclude arteriosclerosis as a factor. The changes described in the veins seemed to be the result, rather than the cause, of hemorrhage.

## COMMENT

The occurrence of large hematomas in fatty tissues without antecedent trauma, local disease or some underlying blood diathesis, such as hemophilia, is extremely rare. No similar case can be found in the records of this institution, though there was one case of a woman of 57 who had a high blood pressure (190 systolic), and who, following a slight injury (hitting her thigh against a table), had a considerable hematoma out of all proportion to the injury to the thigh. Nor can I find any similar cases in the literature. It seems definitely established in this case that there was no local disease or underlying blood disturbance. The elevation of blood pressure was so high that it certainly could be taken as a sensible factor in the hemorrhage, and I am inclined to believe that it was the chief factor in the case reported. Although no great amount of arteriosclerosis is present in the microscopic sections studied, it is barely possible that there was some sclerosis in the larger vessels, and that one of these was ruptured by the movement of a heavy breast with some change of posture.

The fact that the greatest area of hemorrhage, as determined both by the preoperative examination and by cross-sections of the breast after its removal, was in that portion of the breast just at the edge of the pectoralis major muscle, brings up the possibility that one of the larger vessels, which come through just at the edge of the pectoralis major muscle, was ruptured by sudden muscle action, perhaps aided by movement of the breast in the opposite direction. The histologic picture leads one to think that the recent hemorrhage may have been preceded by a smaller extravasation of blood, possibly from the same vessel. Unfortunately, a careful search and repeated sectioning through the involved area of the breast did not reveal any atheromatous or other degenerative changes in the vessels.

The case is cited not only because of its unusual aspect, but also because this condition may closely simulate tumor. There seems to be no possible way of differentiating the conditions, since it would have been quite possible in such a case for a small tumor to exist and be quite unrecognized. We should presume that had this patient not submitted to operation, a lesion might have resulted, similar to that described by Lee and Adair [1] as traumatitc fat necrosis, because one can readily see that, with the healing of this hematoma, there might have occurred a palpable, connective tissue mass and even a dimpling of the skin overlying it.

721 Huntington Avenue.

1. Lee, B. J., and Adair, F. E.: Traumatic Fat Necrosis of the Female Breast and Its Differentiation from Carcinoma, Ann. Surg. **72**: 188 (Aug.) 1920; A Further Report on Traumatic Fat Necrosis of the Female Breast and Its Differentiation from Carcinoma: Three Additional Cases, Surg., Gynec. & Obst. **34**: 521-531 (April) 1922.

# LONGITUDINAL RESECTION OF THE LESSER CURVATURE

## WITH RESECTION OF PYLORIC SPHINCTER FOR GASTRIC ULCER: AN EXPERIMENTAL AND CLINICAL STUDY *

ALFRED A. STRAUSS, M.D.
CHICAGO

In 1915, in the case of an ulcer that extended along the entire upper two thirds of the lesser curvature of the stomach on its posterior wall, I removed the entire lesser curvature, as this seemed the most expedient procedure at the time of operation. At the same time, I performed the routine resection of the pyloric sphincter muscle. The excellent clinical end result in this and a number of similar cases led me to study experimentally the physiology of the stomach after removal of the lesser curvature and the pyloric sphincter muscle.

Von Schmieden [1] performed a similar operation in 1921, but he included transverse resection of the pyloric antrum. This is objectionable in that an hour-glass contraction may follow, and the operation is almost as extensive as the Billroth II or Pólya operation. Neugebauer [2] also reports a similar operation, in which he extirpates a part of the stomach as extensive as in subtotal resection of the Pólya or Billroth II type.

### EXPERIMENTAL FINDINGS

Three groups of six dogs each and one group of three dogs were studied. In all of these the normal emptying time was carefully noted under the fluoroscope and by roentgenograms before any operation was performed.

In the first six animals, the pyloric sphincter muscle was resected in the following manner: The pylorus was grasped between the thumb and index finger and a longitudinal incision made through the muscularis to the mucosa, extending through the pyloric ring and backward on the pyloric antrum for about 1 inch (Fig. 1 *A*). A few strokes with the scapel, between the muscularis and mucosa, freed the mucosa so that it bulged and separated the muscularis from it (Fig. 1 *B*). A similar incision, at right angles to the first one, was carried through the pyloric ring, extending around almost half of its circumference (Fig. 1 *C*). By excising on each side a triangular piece of muscle, with its base at the pyloric ring and its apex at the pyloric antrum (Fig. 1 *D*), I removed a single triangle of sphincter and pyloric antrum muscle, extending almost around half of the circumference of the sphincter and about one third of the circumference of the pyloric antrum (Fig. 1 *E*). A small flap of the omentum from the lesser curvature was brought over the exposed mucosa and sutured to the muscularis (Fig. 2).

Fig. 1.—*A*, longitudinal incision through the pyloric musculature down to the mucosa; *B*, freeing of muscularis from mucosa; *C*, incision at right angle to first incision through pyloric ring; *D*, cutting away the freed muscle; *E*, triangular area of muscle removed from pyloric ring and pyloric antrum.

Fluoroscopic study revealed that the emptying time for these animals was from 35 to 45 per cent. shorter after operation than before the sphincter muscle was resected. At the end of three and six weeks, the emptying time still remained from 35 to 45 per cent. shorter than normal. It was also noted that the peristaltic waves in all these animals were more shallow than before the sphincter was removed, and the stomach emptied rapidly with very little effort. The bismuth meal poured through the paralyzed sphincter, only a few waves being noticeable in the pyloric antrum or lower portion of the stomach.

My deduction is that the intensity and depth of the peristaltic waves are in direct proportion to the amount of resistance at the pyloric sphincter. This is easily demonstrated clinically by the deep and intense waves one sees in the stomach in the obstruction of a congenital pyloric stenosis, or in a pylorospasm due to hyperacidity or duodenal ulcer or in reflex pylorospasm; and the shallow waves seen in achylia gastrica. In the small intestine, when there is gradual chronic obstruction, the peristaltic contractions become more violent in direct proportion to the gradual obliteration of the lumen of the bowel. The emptying time is in direct proportion to the sphincter resistance at the pylorus.

I repeated experimentally other pyloroplasties that have been described, such as the Heineke-Mikulicz, in which the sphincter muscle was not actually cut away. These procedures did not shorten the emptying time, and I have shown definitely by experiments that the only way to shorten the emptying time of the stomach is to destroy the sphincter action of the pylorus; that is, to remove almost one half of the sphincter muscle of the pylorus and antrum. A simple incision through the pylorus, such as the Ramstedt or the plastic operation

* From the Nelson Morris Memorial Institute for Medical Research and the surgical service of the Michael Reese Hospital.

1. Von Schmieden: Ueber die Exzision der Magenstrasse, Zentralbl. f. Chir. **48**: 1534, 1921.

2. Neugebauer, Friedrich: Die Langsresektion des Magens bei hochsitzenden Ulcers der kleinen Kurvatur, Beitr. z. klin. Chir. **122**: 369, 1921.

that I described for congenital pyloric stenosis,[3] will not suffice in the adult; for in the infant there is a tumor, due to hypertrophy, which acts as a constricting ring and prevents relaxation of the pylorus, while in the adult there is a normal musculature which is spastic and which only occasionally shows hypertrophy of the muscle due to prolonged pylorospasm.

Fig. 2.—Omentum covering the mucosa exposed in muscle resection.

The same animals were again taken and the lesser curvature resected, as follows: The lesser peritoneal cavity was opened, and the omentum freed along the greater curvature. The stomach was turned up, and a temporary exclusion suture (Fig. 3 *A* and *B*) of gastro-intestinal catgut was placed along the lesser curvature, the sutures passing forward and backward through both walls of the stomach in convex fashion about 2 inches from the lesser curvature (Fig. 3 *B*). The anterior wall along the lesser curvature, inside the exclusion

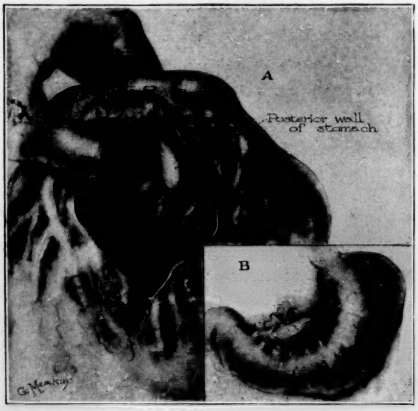



Fig. 3.—*A*, introduction of temporary catgut suture to exclude lesser curvature; *B*, area excluded by temporary suture.

suture, was opened (Fig. 4 *A*) and then the posterior wall was removed (Fig. 4 *B*) and the muscularis and mucosa sutured longitudinally along the line of incision (Fig. 5 *a* and *b*). The temporary exclusion suture was then cut in various places so as to allow the walls to separate. It is not necessary to insert a third row of Cushing inversion sutures, and I did not do it in any of my animals, but it is essential to cover the newly constructed lesser curvature with omentum from the lesser or greater curvature (Fig. 5 *c*), so as to prevent any possible leakage.

Within one week, fluoroscopic examination revealed that the emptying time was from 10 to 15 per cent. longer than after simple sphincter resection, but still from 20 to 30 per cent. shorter than the normal emptying time (Fig. 6). There were also seen shallow superficial waves along the new lesser curvature. The stomach contractions were quite normal, except that they were shallow, owing to paralysis of the pyloric sphincter.

Of the second group of six dogs, in three the mucosa alone was removed from the lesser curvature and the muscle collapsed; and in the other three, the mucosa and muscularis were removed, but the serosa and the lesser omentum with its nerves were left intact. No difference could be seen in the emptying time or peristaltic con-

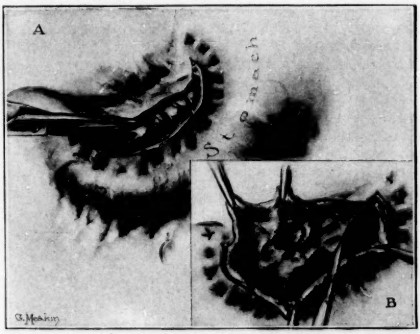



Fig. 4.—*A*, cutting away anterior wall of lesser curvature within the temporary ligature; *B*, cutting away posterior wall of lesser curvature within the temporary ligature.

tractions of the lesser curvature, when the entire muscularis, mucosa and omentum were taken away, or mucosa and muscularis, or mucosa alone. Therefore, my deduction is that the extrinsic and intrinsic innervations of the lesser curvature of the stomach have no effect on its contractions or emptying time.

In the third group of six dogs, the lesser curvature was resected before the sphincter resection was performed, and on fluoroscopic examination the emptying time was slightly longer than normal. From three to four weeks later, in the same animals, sphincter resection of the pylorus was performed, and the emptying time, on fluoroscopic examination, was from 25 to 30 per cent. shorter than normal. Four animals were kept for six months and two for one year, and the emptying time and contractions of the lesser curvature did not change, except that, in the two animals kept for one year, the emptying time was 50 per cent. shorter than normal.

All eighteen dogs retained their weight and seemed perfectly normal.

In three other animals, we removed all of the musculature of the pyloric antrum and pylorus. The peristaltic waves were interrupted where the muscle was

3. Strauss, A. A.: New Methods of Pyloroplasty for Congenital Pyloric Stenosis, J. A. M. A. **65**: 1533-1537 (Oct. 30) 1915.

removed, and were taken up again at the duodenum, but the stomach emptied very slowly, having an average retention of six hours. I therefore assumed that one side of the musculature of the stomach must be left intact in order to get a short emptying time, and that interruption of the peristaltic wave interferes with the emptying time of the stomach.

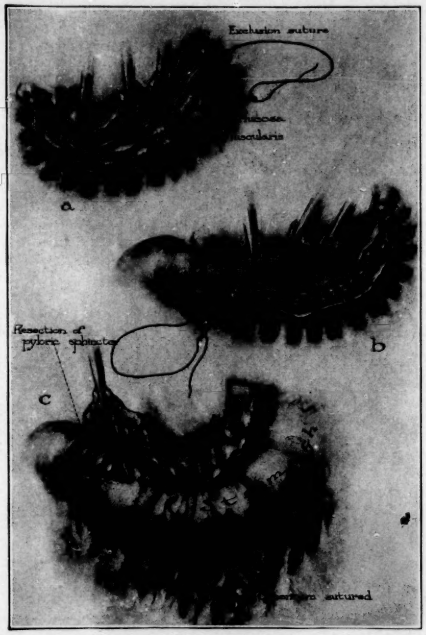



Fig. 5.—*a*, longitudinal closure of mucosa by over-and-over stitch; *b*, longitudinal closure of the muscularis by simple over-and-over stitch; *c*, covering sutured area by omentum from the greater curvature.

Necropsy showed that the newly constructed lesser curvature had an excellent blood supply, with perfect union throughout, and the mucosa along this area healed so perfectly that no scar could be found microscopically (Fig. 7). Though the stomach appeared to be somewhat narrow after longitudinal resection of the lesser curvature, within from three to six months the physiologic function and the accommodation of food had helped the organ to regain almost its normal size and shape. In the sphincter resection of the pylorus with the omental covering of the mucosa, the omentum had become somewhat thickened but protected the mucosa perfectly, and the triangular area in which the muscle had been resected had remained just as at operation.

Experimentally, as well as clinically, V-shaped resections of the lesser curvature give the stomach a much shorter lesser curvature, and form a U-shaped stomach. In these cases, the waves on the greater curvature are intense and deep but cannot force the food forward through the pylorus, and the stomach has a long emptying time—more marked in man than in the dog. The physiologic explanation is that, to facilitate grasping the bolus of food, for each segment of the greater curvature there is a corresponding segment on the lesser curvature. This relationship is retained on longitudinal resection, but it is lost in V-shaped resection. Therefore, excellent clinical results have been obtained in longitudinal resection, and poor clinical results in V-shaped resection.

### CLINICAL FINDINGS

Clinically, any surgical procedure for gastric or duodenal ulcer, in order to be successful, must obey two laws. These laws are: first, that all pathologic conditions in the organ must be removed; second, that after operation the stomach and duodenum must have a normal or shorter than normal emptying time. If the pathologic condition is not removed, although an operation has been performed by which the stomach does have a normal emptying time, the patient suffers from the ulcer that has been left in the stomach or duodenum. If the pathologic condition has been removed and an operation performed through which the stomach does not empty in normal or shorter than normal time, the patient suffers from partial retention, with nausea, heartburn, eructations, sweating, discomfort and fulness. With few exceptions, gastro-enterostomy alone has no place as a surgical procedure in either gastric or duodenal ulcer; for fluoroscopic examination of a large number of patients after operation has definitely demonstrated that it does not shorten the emptying time or

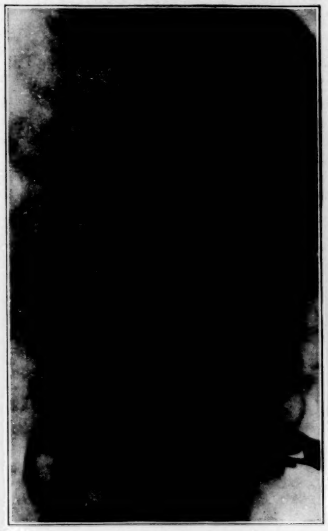


Fig. 6.—Bismuth pouring through the paralyzed sphincter ten minutes after meal, in an animal with pyloric sphincter resection.

remove the pathologic condition. The other operations to consider that fulfil these laws are the Billroth I, the Billroth II, and the Pólya operations. The Billroth I is practicable only in those lesser curvature ulcers that are near the pyloric antrum; the Billroth II is practicable in the high lesser curvature ulcers, but it involves

removal of from 75 to 85 per cent. of the stomach. I have done a large number of these higher resections of the stomach, but there can be no question that the operation is an extensive one and is bound to give a higher mortality than the lower resection, and is not a procedure that every surgeon can master. It does not seem

Fig. 7.—Excellent blood supply and perfect union of mucosa and muscularis in newly made lesser curvature.

reasonable that, for a lesion the size of a half-dollar on the lesser curvature, 80 per cent. of an important organ like the stomach should be removed.

From 1915 to 1918, I performed simple excision of the ulcer, with sphincter resection of the pylorus, in a large series of lesser curvature ulcers. Subsequent study revealed in many cases an ulcer, recurring at or near the site of excision. I assumed, therefore, that the ulcer excision was not wide enough and that not enough of the inflamed area of the stomach had been taken away. Hence I decided to do the present experimental work, and clinically to remove the entire lesser curvature for lesser curvature ulcer in well selected cases.

There can be no question that 95 per cent. of all ulcers occur along the lesser curvature on the posterior wall, and excision of both the anterior and posterior walls of the stomach along the lesser curvature removes not only the ulcer but also an area in the stomach in which ulcers commonly occur. Excision of the lesser curvature, with sphincter resection and a plastic operation on the anterior and posterior stomach walls, accomplishes everything that a high Billroth II resection accomplishes; namely, it removes the pathologic condition and gives the stomach a shorter than normal emptying time. In addition, the patient has practically a normal stomach, with the normal anatomic and physiologic relationship of stomach and duodenum. The operation certainly cannot compare in magnitude with a high resection of the Billroth II or the Pólya type. The resection of the lesser curvature, with the plastic operation on the stomach, is a thirty-five minute operation, and the pyloric sphincter resection takes about three minutes. So, from a standpoint of shock and the seriousness of the procedure, the longitudinal resection of the lesser curvature with sphincter resection seems by far the simpler procedure and is preferable.

I have performed lesser curvature resection in twenty-one cases, the oldest one of which dates back to 1915. Figure 8 is a roentgenogram of the stomach eight years after operation. There was no recurrence of ulcer or symptoms in any of these cases. There was no mortality; every patient made an uneventful recovery, gained in weight rapidly and was on a full diet within from six to eight weeks, and none of the patients complained of heartburn or fulness. They required no medical attention or treatment after operation. On fluoroscopic examination six weeks after operation, the stomach in each case was somewhat narrower than normal, but had an emptying time of from 25 to 35 per cent. shorter than normal.

In four of my early cases, a narrowing of the stomach, simulating an hour-glass contraction, was seen after operation at a point opposite the former location of the ulcer. This did not occur in the resected normal stomach of experimental animals. The narrowing was apparently functional, since the patients had no symptoms of hour-glass contraction, and the stomach emptied sooner than normally. To prevent narrowing, in all of my cases I perform a plastic operation to increase the distance between the lesser and greater curvatures. The technic is as follows: A longitudinal incision is made on the anterior wall of the stomach, through muscularis and mucosa, equidistant between the curvatures and parallel to the lesser curvature (Fig. 9). This incision is transformed into a transverse incision by traction in opposite directions at its central portion (Fig. 10), and is then closed in layers (Fig. 11). The same thing is done on the posterior wall.

The patients for the first few weeks complained of great hunger, due to the rapid emptying of the stomach,

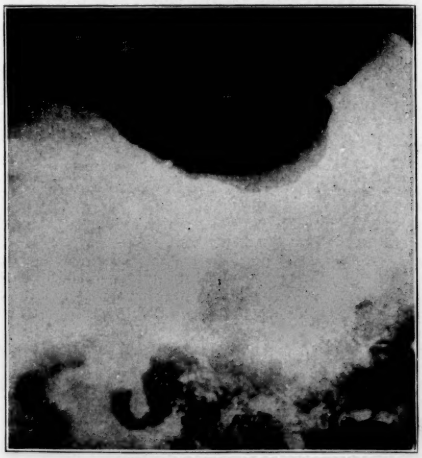


Fig. 8.—Stomach eight years after lesser curvature resection.

which, however, adjusts itself within from six to eight weeks. From four to six months after operation, the emptying time ranges from 25 to 35 per cent. shorter than normal, and one can see under the fluoroscope, just as in the animal, that the stomach is of normal contour and empties with very little effort; the contractions are

shallow, and the bismuth meal pours through the pylorus.

This, I believe, is ideal. In a stomach that has had a chronic ulcer we know that the retention of food with increased chemical irritation has a tendency to keep the ulcer chronic. In fact, the very object that the internist

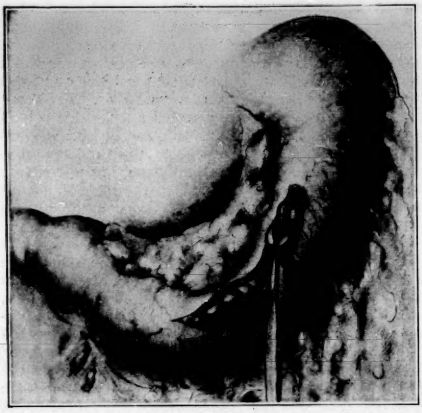


Fig. 9.—Cutting the stomach longitudinally for plastic operation on stomach after resection of lesser curvature.

tries to attain in his medical treatment is to neutralize the acidity and relieve the pylorospasm. In other words, sphincter resection, in addition to removing the pathologic condition by cutting away the lesser curvature, gives the stomach a shorter than normal emptying time, and the stomach empties with the least possible effort, no chance remaining for chronic irritation and for accumulation of hydrochlorid acid.

In the case in which operation was performed eight years ago and in one case of six years ago, the emptying time is still from 25 to 30 per cent. shorter than normal. There are no symptoms of ulcer or retention, the first patient having gained 45 pounds (20 kg.) and the other 30 (13.6 kg.) on a full diet, pursuing the normal course of life and work. I believe that the true clinical test of a surgical cure for gastric or duodenal ulcer is that the patient must be pursuing his normal work in life, on a full diet, free of symptoms, with a gain in weight.

In the case of a large leiomyoma along the lesser curvature, extending within half an inch of the esophagus and within one inch of the pyloric ring, the lesser curvature was resected. While the patient had no symptoms of retention, fluoroscopic examination revealed a very long emptying time. But at the end of one year, the emptying time was shorter than normal, and now, three years after operation, is less than three hours with a bismuth meal.

In lesser curvature ulcers of long standing, when there has been marked pylorospasm with the production of a thickened or hypertrophied stomach wall, especially in the pyloric antrum and pylorus, I believe longitudinal resection of the lesser curvature, with resection of the pyloric sphincter and a plastic operation on the anterior and posterior stomach walls, to be the operation of choice, provided the ulcer is not too large and the surrounding infiltration is not too extensive. In the latter case, high subtotal resection is preferable.

Resection of the pyloric sphincter is of advantage also in cases of long standing pylorospasm, due to causes other than ulcer, in which there is a marked tumor-like hypertrophy of the pyloric antrum and pylorus, similar to that seen in congenital pyloric stenosis. Pyloric sphincter resection was preferable to gastric resection, and gave remarkable results, in a case of resection of a large gastrojejunal ulcer, in which I performed an end-to-end anastomosis of the jejunum after undoing a gastro-enterostomy.

## CONCLUSIONS

1. Experimentally and clinically, the emptying time of the stomach is shortened by resection of the pyloric sphincter muscle.

2. The intensity and depth of the peristaltic waves are in direct proportion to the amount of resistance at the pyloric sphincter. Therefore, following sphincter resection, the stomach empties with the least possible effort.

3. Longitudinal resection of the lesser curvature, with a plastic operation on the anterior and posterior stomach walls, does not materially affect the emptying time of the stomach; on the contrary, the normal contour of the stomach is regained and retained, and the propelling force of the stomach is not hampered.

4. The extrinsic and intrinsic nervous mechanisms in resection of the lesser curvature play very little rôle in the character of the peristaltic waves or in the emptying time.

5. Ligation of the lesser curvature arteries above and below the point of resection has no effect on the blood supply of the newly made lesser curvature, since the

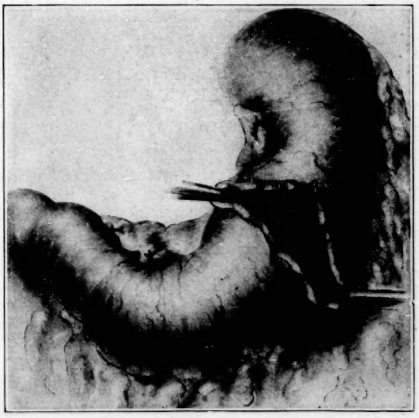


Fig. 10.—Transformation of the longitudinal into a transverse incision so as to widen the distance between the lesser and greater curvatures.

collateral circulation is ample, as is shown by perfect primary union in both animal and man.

6. Longitudinal resection of the lesser curvature with pyloric sphincter resection has given excellent clinical end-results for eight years, with no mortality, and the operation is much more simple than any of the opera-

tions that deal with stomach resection or even gastroenterostomy.

7. The operation I describe is particularly fitted for small ulcers high on the lesser curvature, with little infiltration of the stomach wall, especially when there has been hypertrophy of the pyloric antrum and sphincter.

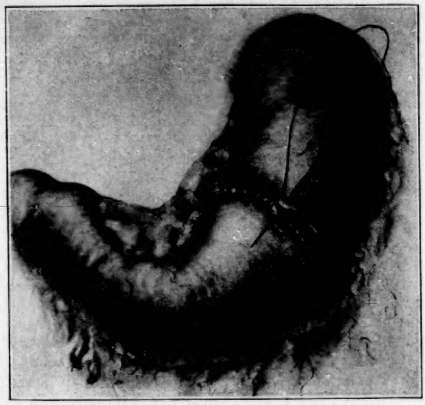


Fig. 11.—Closing the transformed incision.

8. Longitudinal resection of the lesser curvature removes not only the ulcer but also the area in which 95 per cent. of gastric ulcers occur.

104 South Michigan Avenue.

## GANGLIONEUROMA OF THE CERVICAL AND THORACIC SYMPATHETIC GANGLIONS *

A. P. STOUT, M.D.
NEW YORK

The cases reported here are presented to call attention to the clinical aspects of a rare type of neoplasm, which has been studied chiefly heretofore from its histologic and pathologic aspects. There must have occurred many more cases in this country than have been described, and it is to be hoped that more of them will be recognized and studied so that our knowledge of the biologic behavior of the neoplasm may increase. Of the two new cases dealt with in this communication, one seems to have come from the cervical and the other from the thoracic sympathetic ganglions. Accordingly, all the ganglioneuromas occurring in those situations of which records could be found have been studied together with them, so that this paper may be said to contain a summary of most of the known clinical observations that have been made. The best studies of ganglioneuromas in English are contained in the papers of Dunn [1] and Wahl,[2] and the following brief description is taken from those sources.

Ganglioneuromas are neoplasms composed chiefly of adult sympathetic ganglion cells, enormous numbers of neurofibrils usually without any myelinated sheath, sheath of Schwann cells, and connective tissue. The ganglion cells, which multiply amitotically, are sometimes small, with a single nucleus. Often they are much larger, with several nuclei, and these are supposed to be degeneration forms. They may be unipolar, bipolar or multipolar. They are found sometimes singly scattered among a tangled mass of nerve fibrils, sheath of Schwann cells and connective tissue cells; sometimes in groups of fifteen or more enclosed in semicystic areas partly filled with degenerating nerve fibrils. The nerve fibrils, as stated, are usually naked axons, although in some tumors occasional fibers with myelin sheathes are reported. The fibers are always in much greater numbers than could be supposed to have come from the number of ganglion cells found at the time of examination. This is accounted for by supposing that there have been many previous generations of ganglion cells in the neoplasm which have disintegrated and disappeared, but have left their fibrils behind them. It has also been hypothecated that fibrils can be formed by Schwann cells, and that existing fibers may split longitudinally, both of which processes would increase the actual number of fibers. Although, in cases reported, special stains have been used to demonstrate the existence of the various specialized types of cells and tissue, the morphologic picture is so uniform and characteristic that the diagnosis can be made in ordinary routine microscopic sections at a glance by those who have only seen photographs or drawings of the neoplasm.

Grossly, they are usually firm, fibrous and circumscribed but not definitely encapsulated. The cut surface often has a pale, yellowish tint; occasionally there are red areas and areas of degeneration. Metastases are uncommon. Berner [3] has reported a left suprarenal ganglioneuroma, in a girl, aged 4½ years, which had metastases in the regional lymph glands of adult

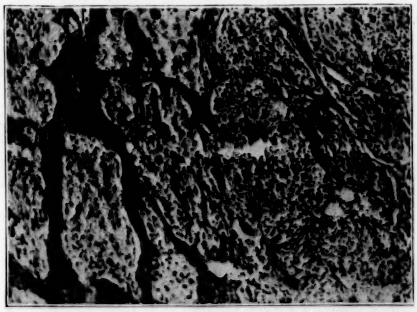


Fig. 1 (Case 1).—Characteristic architecture of a ganglioneuroma: The broad trabeculae are composed very largely of neurofibrils in parallel bundles, with some connective tissue and occasional ganglion cells; the spaces they enclose contain ganglion cells of varied sizes and shapes, small rounded cells, and a tangle of neurofibrils.

ganglion cells and neurofibrils. The other cases in which there have been metastases have all been associated with neuroblastomas (tumors arising from undifferentiated nerve cells), and it has been the neuroblastomatous elements alone that have metastasized.

* From the Surgical Pathological Laboratory of the Presbyterian Hospital.

1. Dunn, J. S.: Neuroblastoma and Ganglio-Neuroma of the Suprarenal Body, J. Path. & Bacteriol. **19**: 456, 1914-1915.
2. Wahl, H. R.: Neuroblastomata. J. M. Res. **30**: 205, 1914.
3. Berner, J. H.: Ein Fall von malignem Ganglioneurom, Beitr. z. path. Anat. u. z. allg. path. **70**: 203, 1922.

The large majority of reported cases have been single; in five or six instances there have been multiple nodules. The distribution of reported cases coincides with the distribution of the sympathetic system; the greater number have been associated with the suprarenal medulla or the lumbosacral sympathetic chain. A few cases have been reported that seem to have come from the cerebrospinal system, although these are open to question. They have been found at all ages, but seem to be more frequent in the first three decades of life. The course is one of slow but progressive growth, with a shoving aside of adjacent structures rather than infiltration.

### CERVICAL CASES

The first case to be reported seems to have been associated with the superior and middle sympathetic ganglions. Before it is detailed, the six other cases of which records exist in the literature will be summarized.

1. Glinski's[4] patient was a girl, aged 10 years, whose mother noted a small tumor on the left side of the neck when the child was 7 months old. It grew slowly but steadily. When it began to make respiration difficult, the mother sought medical relief. On examination there was found a deeply situated tumor extending from just below the ear to the clavicle. The trachea was displaced 3 cm. to the right. It was firm but slightly movable, with an irregular surface. It was not connected with the thyroid. There were no symptoms referable to the nervous system. At operation it was found to extend from the submandibular lymph gland down to the clavicle and back to the cervical vertebrae. The trachea was pushed to the right, and the large vessels forward and to the right. Enucleation was easy. No adhesion was noted to any ganglionic structures. After removal, the blood vessels and trachea resumed their normal positions. The wound healed, and the patient left the hospital well. At no time was any disturbance of the sympathetic nervous system noted. Examination of the tumor showed a mass 9 by 6.5 by 3.5 cm., encapsulated, and the cut surface showed grayish, interlacing striations like a fibromyoma. Microscopic sections showed ganglion cells, Schwann cells, nonmedullated nerve fibrils with a few solitary medullated ones, a small amount of connective tissue, and blood vessels. Glinski thought that it might have come from an embryologically displaced ganglion or displaced ganglion cells.

2. Benda's[5] patient was a child with an inoperable tumor in the right side of the neck. It was the size of an apple and lay in the sheath of the vagus, with the vagus behind it. He thought it might have come from the vagus ganglion. It was encapsulated and had calcified areas in it. Microscopically it was characteristic. No vagus fibers could be found in it.

3. Woods'[6] patient was a man, aged 32, who died with tuberculosis of the lungs, the pharynx, the intestine, and lymph nodes on both sides of the neck. At necropsy, in the region of the lower extremity of the right parotid gland and extending into the submaxillary and retromandibular regions, was a soft, encapsulated mass about the size of a man's fist. It reached to the base of the skull without being attached to the bone. It pressed the larynx and posterior part of the tongue over toward the left. It measured 9 by 8 by 4 cm. The internal carotid, jugular and vagus lay on its lateral aspect, not closely connected with it. It had the characteristic microscopic picture without myelin. He supposed that it came from the superior cervical ganglion.

4. Martius'[7] patient was a boy, aged 2½ years, operated on because of a tumor in the right side of the neck which pressed on the trachea. The clinical diagnosis was malignant tumor of the thyroid. At operation it was found to extend from the region of the right lobe of the thyroid down behind the clavicle into the thoracic cavity. It had completely surrounded the great vessels at the root of the neck, and the subclavian artery was injured during attempted removal. Shortly after operation, the boy died. At necropsy it was found to compress the superior vena cava, and it was firmly attached to the bodies of the first and second thoracic vertebrae. The trachea and both lobes of the thyroid were shoved over to the left side. Parts of the tumor were neuroblastoma, part glangioneuroma and part neurofibroma. The actively growing part of the tumor was the neuroblastoma, but there were no metastases. The middle cervical to the first thoracic ganglions, inclusive, were included within the tumor mass.

5. Freund's[8] patient was a boy, aged 5¾ years, who had had a swelling on the right side of the neck for one year; recently it had grown rapidly. Three days before admission, there was air hunger. Examination showed an egg sized swelling on the right side of the neck shoving the trachea to the left. It did not move with swallowing. At operation there was no connection with the thyroid gland; the carotid artery lay in front and internal to the mass; the jugular vein lay behind; the vagus nerve was not seen. It was easily shelled out, with little bleeding. Four days after operation, the Horner syndrome of

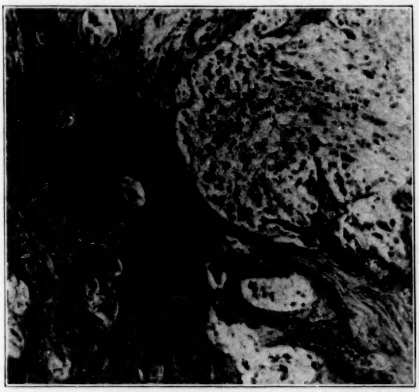


Fig. 2 (Case 1).—On the right, a large pseudocyst filled with ganglion cells in all stages of degeneration, and a loosely woven tangle of neurofibrils; on the left, dense trabeculae of neurofibrils enclosing some isolated ganglion cells and a few small pseudocysts.

ptosis and miosis on the operated side was first noted. Seven days after operation there was right sided anhidrosis, when the left cheek strongly sweat. The right side of the forehead was paler than the left. The right cheek was redder than the left. Four months after operation there was no recurrence, and the symptoms were unchanged. Microscopically, the tumor was characteristic. Almost all the nerve fibrils were nonmedullated.

6. Sommerfelt's[9] patient was a woman, aged 36, who suffered from migraine, was nervous, and had a poor appetite. Five or six years before operation, a lump appeared in the left submaxillary region. A physician called it a gland and gave her arsenic. It grew slowly, and, four years before operation, two roentgen-ray treatments were given. One year before operation, ten or twelve roentgen-ray treatments were given without effect. Shortly before operation, the left eyelid was not as movable as the right. Two days before operation, a difference was noted in the pupils without any diminution in

4. Glinski, L. K.: O nerwiaku Zwojowyn (ganglioneuroma) Wraz z opisem Wlasnego przypadku, Przeglad lekarski Nos. 44 and 45, 1906, pp. 735 and 747 (abstract from translation by Dr. M. Openchowski).
5. Benda, C.: Ein Fall von Ganglioneurom des Nervus Vagus, Verhandl. d. Deutsch. path. Gesellsch. **1**: 266, 1904.
6. Woods, C. S.: Ganglioneuroma des rechtsseitigen Halssympathicus, Prager med. Wchnschr. **31**: 646, 1906.
7. Martius, K.: Maligner Sympatholblastomtumor des Hals sympathikus, teilweise aus differenziert zu gutartigem ganglioneurom, Frankfurt. Ztschr. f. Path. **12**: 442, 1913.
8. Freund, Paula: Ein Ganglioneuroma des rechten Halssympathikus, Frankfurt. Ztschr. f. Path. **13**: 266, 1913.
9. Sommerfelt, L.: Et tilfaelde av ganglioneurom paa halsen, Norsk Mag. f. Lægevidensk. **81**: 911 (Sept.) 1920; abstr. J. A. M. A. **75**: 1238 (Oct. 30) 1920 (translation from the Norwegian by Mr. E. Hanssen); Ein Fall von Ganglioneurom am Hals, Zentralbl. f. allg. Path. u. path. Anat. **30**: 641 (No. 22) 1920.

the sharpness of vision. At operation, the tumor was excised. It was goose-egg sized, encapsulated, grayish white with a yellow tint, and semitranslucent. The consistency was soft elastic. Four strands the size of a needle's eye passed out from the periphery of the tumor. Microscopically, the tumor was characteristic except that there were no multinucleated ganglion cells. Most of the fibers were nonmedullated; a few had myelin sheathes. Sommerfelt questions whether these are true neoplasms or simply hypertrophies.

AUTHOR'S CASE

CASE 1.—*History.*—E. R., a girl, aged 2½ years, had as a baby snored while asleep three days after birth, and breathed peculiarly when awake. At five weeks of age, a mass thought to be a gland appeared on the right side of the neck. This had increased with throat infections, and decreased in the free intervals. Adenoids were removed at 18 months, and tonsils at 2 years of age. The swelling had been hard, and not red or tender. A throat culture showed staphylococcus and streptococcus; a vaccine made from these was prepared, but failed to remove the lump.

*Physical Examination.*—Extending from the right lower border of the lower jaw to the lower third of the neck was a soft, semifluctuating, not tender, somewhat irregular mass.

Fig. 3 (Case 1).—A high power view of a pseudocyst showing ganglion cells in various stages of degeneration with indistinct cell outlines; the tangle of fibrils between the cells is well shown; at the left, the dense fibrillated nature of the trabeculae is clearly seen.

It reached the midline anteriorly and to the posterior border of the sternomastoid laterally. The left side of the neck was normal. Examination otherwise was negative.

The clinical diagnosis was tuberculosis of the cervical lymph glands.

*Operation.*—March 6, 1917, Dr. C. E. MacWilliams found a mass filling up the submaxillary triangle and the middle half of the neck from the thyroid cartilage to behind the sternomastoid. Posteriorly, it extended to the vertebral column. The internal jugular was pushed far posterior, while the common carotid and its bifurcation into the external and internal arteries lay along the outer surface of the mass. The spinal accessory nerve was seen, but not the vagus. It was soft and somewhat adherent. It was removed without much bleeding, being firmly adherent to the thyroid cartilage and the fascia in the region of the tonsil.

*Pathologic Examination.*—A nodular mass, 7 by 4 by 3.5 cm., had a fairly smooth surface with a firm membrane which looked almost like a capsule. The cut surface was grayish white and firm, with no sign of degeneration or caseation.

The nature of this neoplasm was not recognized until recently. As the gross specimen was not saved, no special stains were possible, and the description is made from sections stained with hemotoxylin and eosin. On microscopic examination the sections showed a finely fibrillar ground substance with the fibrils running in parallel bundles, containing cells with elongated nuclei resembling fibrous tissue cells. Caught in the meshes of this tissue were many large, irregular cells with a granular and fibrillated cytoplasm and a large spherical nucleus containing sometimes one and sometimes two or three nucleoli. Some of the cells had one or more cytoplasmic prolongations exactly comparable to typical ganglion cells. In many areas, the cells were gathered together in groups of from four to twenty or more. Here many of them showed evidences of degeneration, such as loss of distinct cell outline, vacuolization and increase in the size of the cell. The larger cell forms had numerous nuclei. The groups of ganglion cells were surrounded by tangled masses of very fine fibrils, and no connective tissue fibrils or Schwann cells were present. In a few areas the typical ganglion cells were associated with large groups of much smaller rounded cells. The nuclei almost completely filled the cell membrane, leaving only a small rim of cytoplasm about them. These took a deep stain. Although they did not resemble them morphologically, in other tumors these have also been shown by special stains to be ganglion cells. No mitoses were seen. The tumor was well supplied with small capillaries.

*Subsequent Course.*—The child made a good recovery. Two days after operation, it was noted that there was slight paresis of the right side of the face, with the mouth drawn toward the left. There was ptosis of the right eyelid. When she left the hospital, a note was made that she had dilatation of the right pupil which would not respond to light. The paresis of the right side of the face and ptosis of the right eyelid persisted. The condition was improving, although the pupil was still dilated.

She was discharged in care of her physician, Dr. William M. Stone of Flushing, N. Y., to whom I am indebted for the following information. For a long time (possibly three or four years) after operation, the right pupil remained dilated. Then it returned to equality with the left one, and when last examined, March 12, 1924, both pupils were equal and reacted to light. An attempt to elicit the ciliospinal reflex failed on both sides. The child is normal and in perfect health. The child's father states that when she is very tired the right pupil is sometimes larger than the left.

THORACIC CASES

The second case to be reported came apparently from the thoracic segment of the sympathetic. Six other cases from this situation are on record, and they will be briefly summarized for the sake of comparison.

1. Loretz'[10] patient was a woman, aged 35, brought into the hospital unconscious, who died before the history could be ascertained. At necropsy, on the left side was a mass, which was closely adherent to the bodies of the second and third thoracic vertebrae. It projected into the left thoracic cavity, where it was covered with pleura, and into the intervertebral foramina. Its connection with the sympathetic was not noted. When cut, it looked like the cross-section of a uterus. This is the first case of ganglioneuroma reported in the literature.

2. Borst[11] reported a case in which the age and sex of the patient were not stated. There was a subpleural mass on the left side, the size of a child's head. There was a characteristic microscopic picture. Most of the nerve fibrils were nonmedullated.

3. Von Rindfleisch's[12] case was cited by Borst, without any details.

4. Tschistowitsch's[13] patient was a girl, aged 12 years, who died of generalized tuberculosis. At necropsy there was found an unsuspected tumor extending from the fourth to the sixth thoracic vertebrae on the right side. It was long and rounded, and the size of a goose egg. It was closely bound to the body of the fifth vertebra, loosely to the fourth and sixth. It raised the right parietal pleura. The surface was smooth; the lungs were not involved. Microscopically, it was characteristic, with

10. Loretz, W.: Ein Fall von gangliosem Neurom (ganglion), Virchows, Arch. f. path. Anat. **49**: 435, 1870.
11. Borst: Die Lehre von den Geschwülsten, Wiesbaden, 1902, p. 241.
12. Von Rindfleisch, cited by Borst: Die Lehre von den Geschwülsten, p. 242.
13. Tschistowitsch: Russk. Vratsch, 1908; abstr. Deutsch Medizinalztg. **31**: 319 (No. 18) 1910.

ganglion cells, degenerative changes and no myelin sheaths to the fibers.

5. Friedrich's [14] patient was a woman, aged 73, who died in the hospital of cerebrospinal meningitis. At necropsy there was found an unsuspected tumor, the size of a goose egg, on the right side in the region of the sixth to the eighth thoracic vertebrae. It measured 7 by 2.8 cm. It had the characteristic microscopic picture. No medullated fibers were found.

6. Edelman [15] and Rosenson [16] reported a case in a girl, aged 8 years, in whom cough, fever, progressive weakness and loss of weight were associated with what was thought to be an encapsulated effusion in the region of the upper right lobe of the lung. At operation (which was done in two stages) a tumor was found springing from the upper right mediastinal region and the fascia covering the spine, from which it was easily separated. It measured 8.5 by 6.75 by 4.5 cm., and was pale yellow, spherical and encapsulated. The cut surface showed fibrous septums and small, hemorrhagic foci. The microscopic picture was characteristic. Following the operation, the child's general condition improved. The cough diminished and she gained weight. The right palpebral fissure and pupil were smaller than the left, and there was enophthalmos of the right eye. Four months after operation, she was shown at the New York Academy of Medicine, Section on Pediatrics.

AUTHOR'S CASE [17]

CASE 2.—*History.*—A boy, aged 2½ years, was perfectly healthy until 7 months of age, when he began to have pain in the stomach region relieved by "injections." Four weeks later he began to cry every night. There was no loss of weight. Four months before I saw him he began to be unsteady on his feet and soon began to drag his right foot when he walked.

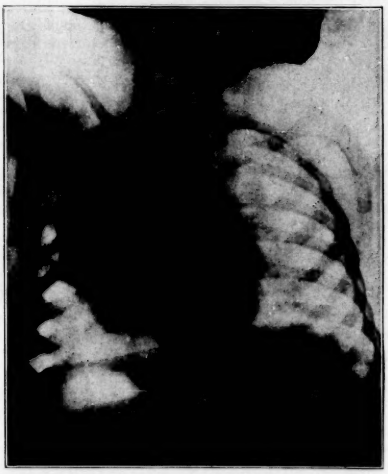


Fig. 4 (Case 2).—Situation of neoplasm in the superior right mediastinum.

Then he grew so weak that he could not sit up. Five weeks before he entered the hospital he lost control of the bladder and anal sphincters. Otherwise he was a normal baby with normal developmental history.

*Physical Examination.*—There was marked dulness over the left upper lobe, front and back, with sibilant and sonorous râles and bronchial breathing. The heart was not displaced. A roentgenogram of the chest showed a dense shadow over the upper portion of the left lung which was thought to be a new growth. There was marked anterior curvature of the thoracic vertebrae. The cervical vertebrae were markedly fixed and rigid. The child could not sit without support, but

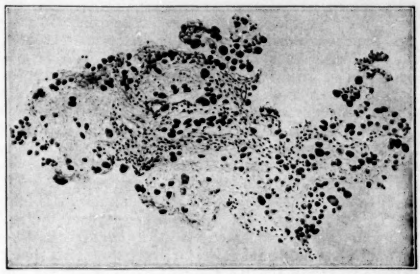


Fig. 5 (Case 2).—Section through entire thickness of piece of tissue found in the lumen of the exploratory needle; the ganglion cells and fibrillated trabeculae are clearly shown.

fell toward the left. Koenig's sign was present in both legs. The reflexes were all present and active. There was ankle clonus on both sides. Sensations seemed diminished; there was no pain sense in the lower extremities, but it was marked in the arms. The blood and the spinal fluid Wassermann reaction was negative.

*Course.*—Dec. 10, 1915, four days after admission, a needle was put into the third left interspace in the anterior axillary line. No fluid was obtained, but a piece of tissue remained inside the lumen of the needle. Examination of this bit of tissue showed ganglion cells, neurofibrils and smaller rounded cells comparable to the microscopic description given in Case 1. (The nature of this neoplasm was not recognized until two years later.) The case was considered inoperable, and the patient left the Presbyterian Hospital. Seven months later, in the early part of July, 1916, the child was operated on at the Neurological Institute, New York, by Drs. Elsberg and Harold Neuhof, in an attempt to relieve the pressure on the thoracic cord, which had become progressively worse. At that time there was found in the spinal canal, occupying the upper dorsal region and extending up into the cervical region, a very long, encapsulated tumor, extradural and continuous with the mass in the chest by an extension through an intervertebral foramen. The child died shortly after the termination of the operative procedure, and no necropsy was obtained. The piece of tissue was brought by Dr. Neuhof to the surgical laboratories of the College of Physicians and Surgeons. Microscopic examination of it was similar to that of the piece removed from the chest and to that from Case 1.

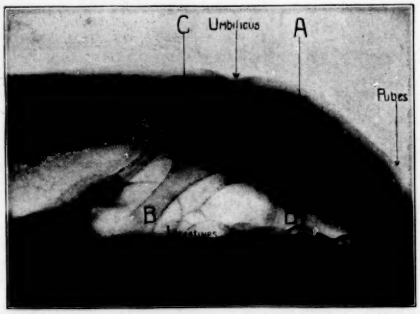
## COMMENT

*Eye Symptoms.*—In Sommerfeldt's case alone were eye symptoms noted before operation, and these are reported in such a way as to leave one in doubt about them. It does not seem entirely clear whether they are due to stimulation or to paralysis of the cervical sympathetic. In three of the cases (two from the cervical and one from the superior thoracic), eye symptoms were noted after operation. Two of these (Freund's from the neck and Edelman-Rosenson's from the upper thorax) showed the characteristic Horner syndrome of ptosis and miosis, which follows the interruption of the sympathetic pupillary fibers. In Freund's case the symptoms had persisted for four months. In Case 1 of this report, the notes in the history are somewhat con-

14. Friedrich, J.: Ein Fall von Ganglioneurom des Sympathikus, Frankfurt. Ztschr. f. Path. **10**: 456, 1912.
15. Edelman, L.: Ganglioneuroma of the Mediastinum, Proc. New York Path. Soc. **23**: 47, 1923.
16. Rosenson, William: Ganglioneuroma of Mediastinum, Internat. Clin. **1**: 78, 1923; Neoplasms of Mediastinum in Infancy and Childhood; Report of a Case of Ganglioneuroma of Mediastinum in a Girl of 8 Years, Am. J. Dis. Child. **26**: 411 (Nov.) 1923.
17. This case was described in the Medical and Surgical Reports of the Presbyterian Hospital, New York **10**: 211, 1918, but has never appeared in any journal.

fusing. Two days after operation, the patient seems to have had ptosis and miosis on the operated side. Ten days after operation, the pupil on the operated side was dilated and remained dilated for several years, after which time it returned to normal. There seems to be no doubt about this dilatation, as it is vouched for by Drs. MacWilliams and Stone and the father of the patient. I have been unable to find any satisfactory explanation of it. It is possible that the fibers were injured during the operation without being divided, and that the dilatation was the result of stimulation. I can find no other example of such an effect following an operation or injury in human beings, and in any case it seems scarcely credible that it should last for so long a time. In Wilbrand and Sänger's textbook [18] there is a quotation that might possibly explain it. They state that Langendorf has found a paradoxical dilatation of the pupil after experimental extirpation of the superior cervical ganglion.

*Anatomic Peculiarities.*—As the neoplasms arise from and extend along the course of the cervical and thoracic segments of the sympathetic system, their relations are just such as one would expect if these ganglions should become enlarged. In the region of the superior ganglion they reach up to the region of the tonsil, push aside the tongue, and extend into the submaxillary fossa and behind the mandible. Farther down, they may extend back to the vertebral column, behind the sternomastoid muscle, and regularly they push aside the internal jugular vein and the common carotid artery or its two main branches, usually separating them with the artery in front and the vein behind. The vagus is always behind. The trachea, larynx and thyroid may be pushed toward the unaffected side. Lower down, they extend behind the clavicle into the mediastinum. In the thorax, they extend from the bodies of the vertebrae forward either to the right or to the left, pushing the parietal pleura in front of them but not invading the lung. Sometimes they may extend into or even all the way through an intervertebral foramen, and extend extradurally up or down the spinal canal, compressing the cord.




Transverse view of abdomen, after pneumoperitoneum, from a retouched roentgenogram: *A*, hernial sac containing gas only; *B*, omentoparietal adhesions; *C*, second hernial sac containing adherent omentum and gas.

*Treatment.*—In the uncomplicated cervical cases it would seem that surgical removal should be relatively easy and should result in freedom from recurrence. If we except the cases of Martius and Woods, which were complicated with other conditions, surgical removal was done in four of the other five. Benda's case was said to have been "inoperable," but we are not told why. In the four cases in which operation was performed, the late result is unknown in two; one went four months and one six and one-half years without recurrence.

In the thoracic cases, if the diagnosis can be made early enough, the case reported by Edelman and Rosenson shows that operative removal may be successfully attempted.

18. Wilbrand and Sänger: Neurologie des Auges **9**: 137, 1923.

## PNEUMOPERITONEUM AS AN AID IN DIAGNOSIS OF HERNIA *

ROBERT EMMETT FARR, M.D.
MINNEAPOLIS

As an aid to the diagnosis of pathologic changes within the peritoneum, the use of pneumoperitoneum seems to have established itself on a fairly firm basis. With increased experience and opportunity for observation, the scope of this method is constantly enlarging. In this report I shall call attention to the assistance offered by the use of pneumoperitoneum in some of the various forms of abdominal hernia: (1) in visualizing the contents of the hernia sac, showing the reducibility, the presence of adhesions, the position of the ring, etc., and (2) in demonstrating the patency of the processus vaginalis peritonaei in persons in whom a hernia cannot be diagnosed clinically, although a so-called "potential" hernia exists.

In all the various forms of hernia it would at least be a source of satisfaction to know beforehand what tissues the sac contains, whether or not its contents are adherent, and the approximate size and shape of the hernial protrusion. In some instances such knowledge would be of considerable importance.

The accompanying roentgenogram illustrates certain advantages of this method in the presence of incisional hernia.

### REPORT OF CASES

CASE 1.—Mrs. B. presented herself at my office with a well established incisional hernia. The former incision had extended from the pubes to above the navel. She stated that the hernial protrusion appeared at times just below the midpoint of the incision, that it could be reduced without difficulty, and that its appearance was not especially painful. She furthermore complained of a constant dragging pain near the region of the umbilicus and more or less gastric disturbance, both of which had made their appearance soon after the operation. By means of pneumoperitoneum and a roentgenogram, a satisfactory explanation of her complaints was revealed. It may be noted in the illustration that the lower hernial sac, which is approximately the size of a hen's egg, is free of intestine and omentum and contains only air (*A*). Furthermore, it may be noted that, higher up along the line of incision, a fair-sized strip of omentum is firmly attached to the abdominal wall (*B*). Laparotomy showed the presence of two hernial openings, the lower containing only air, the upper containing omentum which was adherent at one point—the remaining portion of the sac containing air.

In presenting the subject of "potential" inguinal hernia I shall refer briefly to a few embryologic points. It will be remembered that the testis reaches the scrotum, as a rule, about the end of the eighth month. It is preceded by the vaginal sac, which communicates by its upper extremity with the peritoneum. The narrow neck of the vaginal sac usually closes just before birth—the obliteration extending, as a rule, downward nearly to

* Read before the Minnesota Academy of Medicine, April 9, 1924.

the testis. This closure, separating as it does the vaginal sac from the remainder of the peritoneum, now forms the tunica vaginalis. In the female this process, which is known as the canal of Nuck, and which accompanies the round ligament, passes through the abdominal wall and likewise usually becomes obliterated.

It is probably true that the development of oblique inguinal hernia is dependent, first, on the failure of closure of the tube of peritoneum which passes through the inguinal canal and, secondly, to some degree on the development and attachment of the musculature supporting the inguinal region. Trauma is believed by most authorities to play only a minor part in the etiology of the formation of hernia, although it may be the exciting cause. The various varieties of inguinal hernia take their origin from the modifications in the obliteration of the funicular process in relation to the tunica vaginalis. It is generally believed that by far the most important etiologic factor in the formation of the different types of inguinal hernia is dependent on the patency of the funicular process; that is, that in the individual in whom the peritoneal surfaces have failed to fuse, a so-called "potential" hernia is present and its development will be governed to a certain degree by the muscular competence of the parts.

It is easily conceivable and undoubtedly true that most persons in whom an inguinal hernia which may be appreciated clinically develops have had a patent funicular process up to the time at which the clinical demonstration of hernia is possible.

The following more or less accidental observation has led me to believe that, by the use of pneumoperitoneum, the presence of a patulous peritoneal tube projecting through the inguinal canal may be diagnosed in instances in which a clinical diagnosis could not otherwise be made.

CASE 2.—R., a man, entered St. Mary's Hospital, April 2, 1924, for investigation of a more or less obscure group of symptoms pointing to a lesion in the upper abdomen. The routine employment of pneumoperitoneum was followed by a distinct enlargement of the left scrotum. The scrotal tumor was tympanitic on percussion and translucent to reflected light. Partial deflation resulted in a diminution in the size of the scrotal enlargement. By compression, the scrotum could be reduced to its normal size. The interesting observation was made that the introduction of air into the peritoneal cavity, whence it presumably passed into the scrotum, resulted in more or less tenderness of the local parts (scrotum).

COMMENT

This patient, who had never had any of the symptoms or signs of inguinal hernia before the introduction of pneumoperitoneum, showed almost unmistakable evidence of a patent funicular process. It would therefore seem reasonable to assume that, by the introduction of gas into the peritoneal cavity, the presence of a "potential" inguinal hernia could be diagnosed. As an analogue of this, the appearance of fluid in the scrotum of the new-born after giving intraperitoneal fluid has been frequently noted and is here mentioned.

Whether or not this method of procedure will become of sufficient value to have practical application, it would be difficult to predict at this time. It would seem to have at least sufficient value to be worthy of careful investigation. In cases in which pneumoperitoneum is performed, it would undoubtedly be worth while to be on the lookout for any abnormal protrusion in the inguinal region in cases in which inguinal hernia has hitherto been unsuspected.

Another point which presents itself for consideration and which was suggested by my associate, Dr. Clarence W. Brunkow, is the possibility of the overdistention of the peritoneal cavity with gas acting as an etiologic factor in the formation of hernia. This point, as suggested by Dr. Brunkow, might become of special significance if the patient should evolve the idea that the introduction of gas into the peritoneal cavity was indeed the etiologic factor in the production of a hernia of which he had no knowledge before the gas was introduced. Under such conditions, this factor might easily become of considerable importance as one of the contraindications to pneumoperitoneum, which in certain instances has proved itself a most excellent adjunct to our diagnostic methods. This problem is of special significance in industrial surgery in which the presence or absence of "potential" hernia in an applicant cannot be determined by the medical examination.

1645 Hennepin Avenue.

## LOCALIZATION OF SPINAL BLOCK BY MEANS OF IODIZED OIL*

ETHEL C. RUSSELL, M.D.
PHILADELPHIA

The favorable prognosis following laminectomy for spinal cord tumors when an early diagnosis is possible is demonstrated beyond the peradventure of a doubt by the work of Adson, Cushing and Frazier. That such tumors are frequently overlooked or considered hopeless by the general practitioner is brought out by necropsy findings and the variety of diagnoses first given, such as neuritis, rheumatism and gallbladder disease. In a recent review of cases, Frazier and Spiller [1] report the average time as two and three-fifths years before diagnosis is established. The frequency of spinal cord tumors, as compared to brain tumors, is as 1:6; the operability is higher and the mortality lower. The usual symptomatology of pain, paresthesias, motor and sensory changes, and disturbed reflexes may be lacking for a sufficiently long time to puzzle the most experienced neurologist and thus allow too great damage to nerve tissue for restoration of function after removal of the tumor. The work of Ayers, Ebaugh and others in establishing spinal block by means of combined cisternal and lumbar puncture is of great value in diagnosis but of little assistance in localization. Recently, French surgeons, notably Sicard,[2] have reported several instances of the use of iodized oil in conjunction with the roentgen ray for the localization of spinal and cranial lesions. No extensive reports have yet appeared in this country, and while its use is still open to question in the hands of those unaccustomed to neurosurgical problems, the following case offers evidence of the value of the method in selected cases:

REPORT OF CASE

*History.*—J. H., a white man, aged 25, a dental mechanic, was admitted to the hospital, May 7, 1922, with the complaint of paralysis of the legs. He stated that eight months before, he had noticed that he dragged the right foot in walking. He had had no pain and no abnormal sensations of any kind. Two months before, he began to have some difficulty with the other foot and went to a hospital, where a lumbar puncture was done.

* From the neurologic service of J. W. McConnell, Philadelphia General Hospital.

1. Frazier, C. H., and Spiller, W. G.: Spinal Cord Tumor, Arch. Neurol. & Psychiat. **8**: 455-501 (Nov.) 1922.
2. Sicard, J. A.; Paraf, P., and Laplane, L.: Spinal Radiography by Means of Lipiodal, Presse méd. **31**: 885 (Oct. 24) 1923.

This, he believed, aggravated his condition, and while he was able to walk to the hospital, he had been unable to walk since the procedure.

He stated that he had noticed "shortness of breath" on exertion since the age of 14, but that there were no other symptoms referable to other bodily systems.

He had not walked until 2 years of age. At the age of 6 months a "cancer" was removed from the left shoulder. He had had chickenpox, measles, scarlet fever and pneumonia as a child.

In the family history there were no similar conditions and nothing of any bearing or of interest.

*Examination.*—The general physical examination revealed no abnormal findings. There was some spasticity of the lower extremities, with increased patellar reflexes, a bilateral Babinski reflex and ankle clonus. The sensory changes varied from day to day. There was some dysthesia for temperature sensations about the waist, but this was not a constant finding. The motor power was not lost, but the patient could not be induced to stand. There was thought to be a large functional element in the case.

Blood study and urine examination revealed no pathologic conditions.

The spinal fluid showed no increase in cell count, and all tests for syphilis were negative.

The roentgen-ray examination was negative for any bone lesion of the dorsal, lumbar or sacral vertebrae.

*Subsequent Events.*—The patient remained in the convalescent ward, content to sit in his wheel chair, making no complaints. A mental examination was reported as, "Dull normal individual, no evidence of hysteria, no delusional trends elicited, and nothing to suggest a psychotic condition." Repeated examinations by various physicians revealed no new findings, and the diagnosis was made of spastic paraplegia.

February 21 of the present year, reconsideration of the case revealed that the patient had developed incontinence of the

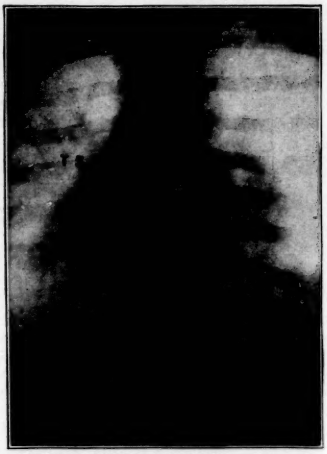


Fig. 1.—Iodized oil at level of fifth thoracic vertebra.

bladder and partial incontinence of feces. A lumbar puncture showed a slightly yellow fluid, containing three cells per cubic millimeter, and a cloud of globulin. The manometer registered 10 mm. of mercury, and pressure on the jugular veins (Queckenstedt) showed no rise in the column of mercury. At no time was there any evidence of tuberculosis or syphilis. Later combined cisternal and lumbar puncture was attempted, but no fluid could be obtained from the lumbar region. The pressure and examination of that from the cisterna showed no abnormalities. The spasticity and degree of exaggeration of the reflexes had increased. The sensory examination showed no definite level, but there was some impairment for tactile, pain, temperature, vibratory, position and pressure sensations over the extremities and abdomen.

In view of (1) the fact that the history was not unlike that of a cord tumor without pain but with motor symptoms at

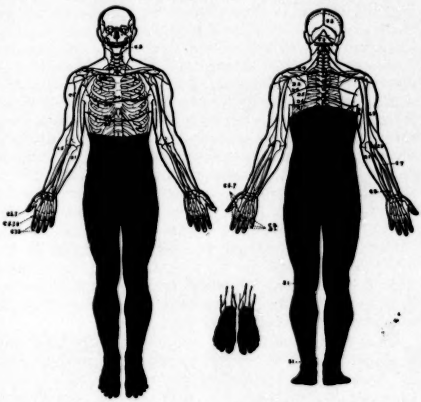


Fig. 2.—Sensory impairment for all forms of sensation.

onset, (2) the helplessness of the patient with incontinence, and (3) the negative evidence of any other disease, the establishment of a lesion causing a spinal block or proof of its absence was most desirable. Accordingly, 2 c.c. of iodized oil was introduced into the cisterna magna, and roentgenograms were taken of the thoracic spine. The iodized oil, being heavier than the spinal fluid, seeks its level and, in cases without obstruction, will be found at the lowest point. In this instance, the impervious material is seen opposite the body of the fifth dorsal vertebra (Fig. 1). Following the injection, there was slight pain in the distribution of the seventh cord segment and localized sweating over adjacent vertebrae. Both of these phenomena disappeared during the second twenty-four hours after injection. The patient had no convulsions, rise of temperature or any other abnormal clinical manifestations. The conclusion was thus made of an obstruction at the fifth dorsal vertebra or seventh thoracic segment of the cord, and surgery was recommended.

I have personal knowledge of the use of this method in two other cases with no untoward results. However, the work of Ayer and Mixter[3] indicates the irritability of the oil, and undoubtedly the method is not for indiscriminate use.

Checking the findings later, a sensory level could be demonstrated corresponding to the foregoing localization (Fig. 2).

April 23, laminectomy was performed by Dr. John Stewart Rodman, and a tumor was removed at the level indicated. The tumor was located on the anterior surface of the cord, intradurally, and was approximately 4 or 5 cm. in length. The gross appearance was that of a fibroma. Although exceedingly friable, it was readily separated from the cord, with no evident injury to it.

## CONCLUSIONS

1. Spinal block can be demonstrated by the use of iodized oil.
2. The method is indicated when no definite sensory level or other localizing signs are present.
3. With careful aseptic technic, no untoward reactions were experienced.

3600 Walnut Street.

3. Ayer and Mixter: Proc. Boston Soc. Neurol. & Psychiat., Dec. 6, 1923.

# VISUALIZATION OF THE GALLBLADDER BY THE SODIUM SALT OF TETRA-BROMPHENOLPHTHALEIN *

EVARTS A. GRAHAM, M.D.
WARREN H. COLE, M.D.
AND
GLOVER H. COPHER, M.D.
ST. LOUIS

Since the publication of an article a few weeks ago by two of us[1] on the production of roentgen-ray shadows of the gallbladder, a more satisfactory method has been developed by using the sodium salt of tetrabromphenolphthalein, instead of the calcium salt. The sodium salt is much more soluble. We are now using only from 35 to 40 c.c. of solution instead of 350 c.c. required by the calcium salt. It is much more stable, and is not crystallized out by sterilization. The first several injections of the calcium salt, as stated in our previous publication, produced no reaction. However, it was found later that a large proportion of the patients had reactions, which were characterized by headache, backache, nausea and vomiting, which lasted from ten minutes to ten hours. There were never any significant changes in pulse or blood pressure. The sodium salt was found to produce much less severe reactions; in fact, a large percentage of the patients had no ill effect, except a transient nausea lasting only ten or fifteen minutes. Particularly was this true among the men patients, who as a whole seem less susceptible to reaction. It seems quite probable that the large amount of fluid used in the injection of the calcium solution was responsible for part of the reaction.

The sodium salt of tetrabromphenolphthalein can now be obtained in crystalline form from the Mallinckrodt Chemical Works of St. Louis. If this is used, all that is necessary to do is to dissolve 5 or 5.5 gm. of the crystalline salt by heating in 40 c.c. of distilled water, and sterilize in a boiling water bath for fifteen or twenty minutes. A few samples have been autoclaved, and were found to produce shadows just as efficiently as the solution sterilized in the water bath. If desirable, the solution may be put up in vials, sealed and sterilized. These solutions, as well as those in unsealed receptacles, have been left for from twenty-four to thirty-six hours before injection and found to be just as satisfactory as those given immediately after preparation. As yet we have not given a solution that has been standing over thirty-six hours, but see no reason why it should acquire any harmful properties.

The solution of the sodium salt is given intravenously, preferably in two doses. We have never given it all in one dose, and do not know whether any serious symptoms would result or not. The injection should be given in the morning between 7:30 and 9:30 with a syringe, in divided doses as stated, after the solution is warmed to body temperature. The dose should be reduced for patients weighing less than 115 pounds (52 kg.). Great care should be taken not to allow extravasation of the solution outside the vein, on account of the danger of necrosis. To obviate this danger, we recommend dilution of the solution up to 40 c.c. and insertion of the needle independently of the syringe, thus allowing a free flow of blood before the solution is injected. A few cubic centimeters of sterile physiologic sodium chlorid solution should be injected after the dye to prevent leakage of the solution through the vein wall or needle.

Orders are given for the patient to:

1. Omit breakfast.
2. Omit lunch (a glass of milk may be given if hunger is too pressing).
3. Take 40 grains (2.6 gm.) of sodium bicarbonate every three hours for forty-eight hours day and night while awake.
4. Lie on the right side of the abdomen or be up.
5. Take water, if desired, by mouth.
6. Omit protein from the evening meal on the day of injection.
7. Take roentgen-ray films at four, eight, twenty-four and thirty-two hour periods (no special technic).

We call attention especially to the omission of breakfast and lunch, since this was unfortunately not mentioned in our first publication, and seems to be of great importance.

## ANALYSIS OF CASES

There have been fifty-five cases in which injections with adequate dosage were given. One of these had inadequate roentgen-ray films. Several experimental routines were tried. The one given above seems to produce, by far, the most satisfactory results.

*Results*

| | | | | |
|---|---|---|---|---|
| Regular routine | Calcium salt... | 28 | 25 positive | |
| | | | 3 negative..... | 2 had obstruction of cystic duct with stones |
| | | | | 1 had gallbladder only 2×3cm. in diameter and very badly diseased |
| | Strontium salt | 2 faintly positive | | |
| | Sodium salt... | 10 | 9 positive | |
| | | | 1 negative (appendiceal abscess; gallbladder not seen) | |
| Experimental routine | 1. Combined with gastro-intestinal roentgen-ray series..... | 9 | 7 positive | |
| | | | 2 negative | |
| | 2. Variation of routine orders..... | 3 negative | | |

## INTERPRETATION OF RESULTS

Obviously, any attempt to establish a criterion for the diagnosis of lesions of the gallbladder from the roentgen-ray shadow at such an early date would be entirely premature. However, certain features have presented themselves, many of which have been quite consistent.

A normal gallbladder will begin to cast a shadow from three and one-half to five hours after the injection; will show a tendency to change in size; will cast its heaviest shadow between sixteen and twenty-four hours, and empty in about forty-eight hours. The shadow shown on the four or eight hour plate is almost invariably larger than the subsequent shadows. So far, all gallbladders that failed to show this "elasticity or distensibility" at some time during the series, when the injection was followed by the routine given above, have been found to be pathologic at operation, or to give definite clinical findings of gallbladder disease. Pathologic gallbladders do not cast so heavy a shadow as normal ones, since the production of the shadow is dependent on the concentration power, which may be partially or completely destroyed by disease. In four cases in which the routine order was followed, the gallbladder failed to cast a shadow. All of these patients were operated on. Two had a stone occluding the cystic duct; one had a gallbladder so scarred and contracted by disease that it was too small to cast a shadow. The fourth patient had an appendical abscess containing a considerable amount of pus; on account of the abscess,

* From the Department of Surgery, Washington University School of Medicine and Barnes Hospital.

1. Graham, E. A., and Cole, W. H.: Roentgenologic Examination of the Gallbladder, J. A. M. A. 82:613 (Feb. 23) 1924.

the gallbladder region was not explored, and the amount of pathologic change, if any, could not be determined.

In all patients with cholelithiasis in which the cystic duct was not occluded, the stones have appeared as either negative or positive shadows, but only after the injection of the dye. The size, shape and density of the roentgen-ray shadows of the gallbladder have been variable, and will undoubtedly prove to be important factors in diagnosis. It is most important, as in gastrointestinal examination by roentgen ray, that a series of plates be obtained. So far, we have been content with four, eight, twenty-four and thirty-two hour plates.

## SOME CHANGES IN THE CHEMICAL CONSTITUENTS OF THE BLOOD FOLLOWING A MARATHON RACE

### WITH SPECIAL REFERENCE TO THE DEVELOPMENT OF HYPOGLYCEMIA *

SAMUEL A. LEVINE, M.D.
BURGESS GORDON, M.D.
AND
CLIFFORD L. DERICK, M.D.
BOSTON

Last year we [1] studied a group of runners who participated in the American marathon race of 25 miles, which takes place annually in Boston, April 19. In general, it was found that men who had been doing long distance running for many years did not develop hypertrophy of the heart as indicated by roentgen-ray examination. Furthermore, directly after the race, the heart was found to be somewhat contracted rather than dilated. The vital capacity of the lungs was measured and did not seem to bear any particular relation to the running ability of the contestants, and on the average it was not increased over the normal figure for men who live comparatively nonathletic lives.

This year the usual distance of 25 miles was extended to 26 miles and 385 yards, the occasion being the final Olympic tryout. The examinations this year were made to see what changes occurred in some of the more important constituents of the blood, i. e., the sugar, uric acid, nonprotein nitrogen and carbon dioxid combining power. In all, eleven different runners were examined. Of these, five (Runners 57, 59, 55, 1 and 46) were tested one or two days before the race. One of the others (Runner 68) was not only examined directly after the race but returned two days later for final observation. Since many of the contestants had come from a considerable distance, and had arrived in Boston only the night before the race, it was not possible to examine the other five until immediately after the race. The plan was to draw venous blood from the arm as soon after finishing the race as possible. In the five men who had control specimens taken before the race, this was done within ten minutes after they had crossed the finish line. In a few, blood was taken within two minutes. With the others venipuncture was made somewhat later, but in no instance did more than thirty minutes elapse between the finish and the bleeding. The blood was drawn into lithium oxalate, and determinations were made within one to two hours by the methods of Folin according to his latest modifications.

* From the medical clinic of the Peter Bent Brigham Hospital and the department of biologic chemistry of the Medical School of Harvard University.

1. Gordon, Burgess; Levine, S. A., and Wilmaers, A.: Observations on a Group of Marathon Runners, Arch. Int. Med. **33**: 425 (April) 1924.

### BLOOD CONSTITUENTS AFTER RACE

In the table are charted the data obtained in this study. Several striking points are apparent. The nonprotein nitrogen practically doubled in all instances. This bears out the work done by Feigl,[2] who found a somewhat similar rise in the blood constituents of German soldiers following a 20 mile march with full packs. The uric acid showed a decided increase above the normal. Although only one runner was reexamined (Runner 68), the examination showed that the nonprotein nitrogen and the uric acid had returned to normal forty-eight hours after the race. The carbon dioxid combining power of the blood showed a slight but distinct tendency to fall in three runners on whom control determinations were made before the race.

The most striking feature of the study was the marked fall in the sugar content of the blood that occurred in a majority of the runners. An analysis of the individual findings proves rather illuminating. No. 60 showed a rather high blood sugar level, 178 milligrams per hundred cubic centimeters. This runner left the race at about the fifteenth mile, and took some food, consisting of meat, bread and soda water, from fifteen to thirty minutes before the blood was drawn. Runner 68 also showed a slightly elevated blood sugar level; this was accounted for by the fact that he ate some food just as he finished the race, and about twenty minutes before the blood was taken. There were three men (1, 46 and 79) whose blood sugar was within normal limits. The first two of these had had

*Observations After Race*

| Number of Runner | Mg. per 100 C.c. of Blood Plasma: Nonprotein Nitrogen Before | Nonprotein Nitrogen After | Uric Acid Before | Uric Acid After | Sugar Before | Sugar After | Carbon Dioxid Combining Power Before | Carbon Dioxid Combining Power After | Physical Condition |
|---|---|---|---|---|---|---|---|---|---|
| 57 | 28.20 | 54.00 | 2.88 | 5.16 | 81 | 65 | 37.3 | 33.5 | Fair (pale) |
| 59 | 29.40 | 58.80 | 5.72 | 6.83 | 87 | 49 | 41.8 | 37.3 | Very poor (pale, cold); irritable |
| 55 | 23.40 | 36.90 | 4.44 | 7.00 | 88 | 65 | 43.2 | 34.0 | Fair |
| 1 | 26.70 | 34.50 | 3.0 | 3.40 | 108 | 89 | .... | .... | Good |
| 46 | 25.20 | 36.90 | 3.68 | 6.30 | 92 | 82 | .... | 41.8 | Good |
| 68 | ..... | 38.10 | .... | 6.88 | .. | 123 | .... | .... | Good; ate food before venesection |
| | | 23.50* | | 3.80* | | 91* | | | |
| 60 | ..... | 39.30 | .... | 4.92 | .. | 178 | .... | .... | Good; stopped running after 15 miles; ate food before venesection |
| 79 | ..... | 63.60 | .... | 7.13 | .. | 82 | .... | .... | Good |
| 109 | ..... | 30.30 | .... | 4.24 | .. | 50 | .... | .... | Very poor (pale) |
| 29 | ..... | 45.00 | .... | 6.53 | .. | 47 | .... | 34.0 | Very poor (pale) |
| 37 | ..... | 32.40 | .... | 5.56 | .. | 45 | .... | .... | Very poor, shocked, stuporous |

* Blood taken forty-eight hours after the race.

preliminary examinations, and the figures after the race, which are lower, show that the fall may have resulted from the violent exercise, although the element of variation of blood sugar content with relation to the previous meal was a possible factor in the change. The remaining six runners showed unusually low blood sugar levels after the race.

Such figures are rarely encountered in human experience except with excessive doses of insulin. In some experimental work by Mann and Magath [3] on dogs, the sugar content of the blood was found to fall to low levels following the complete extirpation of the liver. They found that at the level of 60 mg. per hundred cubic centimeters, the animals became weak. On reaching 50 mg., the muscles became flaccid and the animals

2. Feigl, J.: Chemische Blutuntersuchungen an der Teilnehmern eines Armes, Gepäckmarsches, Biochem. Ztschr. **86**: 292, 1916.

3. Mann, F. C., and Magath, T. B.: The Liver as a Regulator of the Glucose Concentration of the Blood, Am. J. Physiol. **55**: 285, 1921.

became comatose. Below the level of 40 mg., death resulted. Since these experiments were made, similar symptoms have repeatedly been observed to follow an overdose of insulin with corresponding changes in the blood sugar, both in the experimental animal and in human beings.

### RELATION OF EXHAUSTION TO LOW BLOOD SUGAR LEVEL

If one calls to mind the appearance of exhaustion that some athletes manifest after a grueling contest like a crew race or a long distance run, one will be struck with its similarity to progressive insulin shock. Some of the runners at the finish of the race showed muscular twitching, extreme pallor, cold, moist skin, nervous irritability, and even collapse and unconsciousness. It is extremely significant that a correlation existed between the blood sugar level and the physical condition of the runner at the finish. Those who had a normal blood sugar content showed no symptoms or signs of shock. The winner of the race (Runner 1), who broke the world's record, had a comparatively normal blood sugar and was in excellent condition after the race. In fact, all the changes in his blood were very slight. There were two other runners (46 and 79) who showed very little evidence of exhaustion, and the blood sugar was essentially normal. Runners 57 and 55, who finished in only fair condition, showed asthenia and pallor, and blood sugar levels of 65 mg. per hundred cubic centimeters. The other four men (59, 109, 29 and 37) were markedly prostrated at the finish. In fact, Runner 37 was unconscious and was brought in by the police, perfectly limp. The appearance of the latter men was strikingly similar to the pictures produced either experimentally or in human beings by advanced hypoglycemia.

The significance of the foregoing data is that, during such a prolonged and violent effort as a marathon race, when the metabolism is more than ten times the normal, as was shown by Ranchen,[4] the normal supply of the reserve blood sugar in the body is insufficient. The rapid response to the ingestion of sugar, when symptoms of hypoglycemia have been observed under experimental conditions and as a result of an overdose of insulin, makes it seem highly probable that the state of shock that these runners manifested could either have been prevented or at least ameliorated if a larger supply of carbohydrate had been taken in the diet the night before or the morning of the race. Furthermore, it would seem advisable for the runners to ingest during the race sugar in the form of lime drops or any other form of sweets.

### SUMMARY

The examination of the blood of a group of eleven marathon runners showed at the end of the race a more or less marked increase of the nonprotein nitrogen and uric acid, and a slight fall of the carbon dioxid combining power. The sugar content of the blood was found to be normal in three runners, somewhat diminished in two, and markedly decreased in four. In two instances, food was taken before the withdrawal of blood, thus elevating the blood sugar.

There was also a close correlation between the condition of the runner at the finish of the race and the level of his blood sugar. Those who had the extremely low blood sugar level presented a picture of shock not unlike that produced by an overdose of insulin. It is suggested that the adequate ingestion of carbohydrate before and during any prolonged and violent muscular effort would be of considerable benefit in preventing the hypoglycemia and accompanying development of the symptoms of exhaustion.

721 Huntington Avenue.

4. Ranchen: Influence of Certain Types of Exercise on Basal Metabolism, Handlingar Finska Lökaresallskapets **63**: 277, 1921.

## *Clinical Notes, Suggestions, and New Instruments*

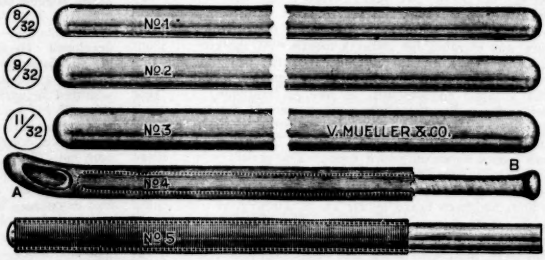
### THE TEMPORARILY REINFORCED DRAINAGE TUBE

EMMET A. PRINTY, M.D., CHICAGO

Most surgeons have encountered, at one time or another, difficulty in suturing in place flexible rubber drainage tubes, when used for drainage of a hollow viscus.

Some years ago [1] described a method of reinforcing the tube, which presented many advantages. Originally, solid glass rods of various sizes were used to render the tube temporarily nonflexible. Since that time, metal rods of proper size have been made for this purpose by V. Mueller & Co.

After the surgeon determines what size of rubber drainage tube he will use, the nurse threads it over the proper rod.




1, 2, 3, metal obturators for drainage tubes; 4, *A*, soft catheter; *B*, flexible bougie; 5, prepared tube.

It will be found that a tube so prepared (5 in the accompanying illustration) is easy to introduce and to hold in place. The insertion of fixation sutures is facilitated, and purse-string sutures can be tied firmly, without danger of occluding the lumen of the tube by compression. The inversion that precedes the tying of the purse-string suture is easily accomplished, whereas in the case of a flexible tube this procedure is often found difficult.

The solid rod plugs the tube so that no contents can escape; the forceps that are generally clamped on the end of the tube for this purpose are dispensed with. The rod is left in place until the external wound has been closed and dressings applied. It is then removed and, as in cholecystostomy, the tube is connected in the usual way. The tube may be rendered nonflexible whether it is used plain or "dressed."

When soft rubber catheters are used, as in enterostomy or choledochostomy, then one may employ elastic bougies of proper size, in place of the metal rods (No. 4).

The diameter of each rod is slightly less than that of the lumen of the corresponding tube. This allows the rod to be easily inserted and removed, and also allows of proper compression by a purse-string suture.

2040 Lincoln Avenue.

1. Printy, E. A.: Surg. Clinics Chicago **2**: 989 (Oct.) 1918.

## REPORT OF A CASE OF RETAINED PLACENTA, CLINICALLY PLACENTA ACCRETA

C. J. ANDREWS, M.D., NORFOLK, VA.

Recent literature on obstetrics has called attention to the fact that placenta accreta is an extremely rare and very dangerous condition; that while it is a definite pathologic or anatomic entity, it is, in some cases, not possible to make a positive diagnosis if the uterine tissue is not available for microscopic study. The essential characteristic is absolute atrophy of the endometrium, which results in absence of decidua, the chorionic villi penetrating directly into the uterine musculature, in some cases, nearly to the peritoneum.

This condition is believed to be caused by an abnormal condition of the inner uterine wall, following vigorous curettage of the uterus, previous manual removal of the placenta, endometritis, oft repeated pregnancy, or myoma.

Obviously, there is no possibility of such a placenta separating itself normally, and manual extraction entails extreme danger of rupture of the uterus and hemorrhage.

Dietrich, in 1922, found nineteen well described cases in literature. Polak found one case in 6,000 deliveries, and has seen only three others.

The treatment recommended is hysterectomy after exploring the uterus manually, and finding no line of cleavage. This may be supplemented by hysterectomy and an attempt to separate the placenta under the guidance of the eye before doing the hysterectomy.

The following is a brief history of a patient who had a retained placenta with absolutely no line of cleavage, therefore, clinically, a placenta accreta.

Mrs. G., aged 31, a secundipara, had been married six years. At the last labor, five years before I saw her, delivery had been with instruments and very difficult, with manual removal of the placenta. Following this labor the patient's temperature was elevated for about a month. At the end of about three weeks, a considerable piece of the placenta was discharged. At that time the patient was quite sick, and possibly had a septic endometritis, as well as sapremia. One year before I saw her, there was a curettement, and cervical repair was done. Thus there were present three of the recognized etiologic factors in placenta accreta. The present pregnancy had been without untoward event. The patient was admitted to the Protestant Hospital, Feb. 22, 1923, in active labor. No fetal movements had been felt for a day or two, and no heart sounds had been heard by Dr. H. R. Drewry, in consultation with whom I saw the patient. The diagnosis of breech presentation with probably a dead baby had been made. A full term, macerated fetus was delivered by breech presentation without difficulty. The death of the baby was evidently due to a thrombus in the umbilical vein about 3 cm. from the placenta. No bleeding followed delivery of the fetus. Five c.c. of pituitary extract was given after delivery. After waiting about two hours without any evidence of separation of the placenta, I explored the uterus manually. The placenta was rather thin, and was attached to a considerable portion of the inner surface of the uterus. No line of cleavage could be found. With one hand in the uterus and the other on the abdomen, I broke into and removed the placenta in small pieces, until no placental mass could be felt, although I know that a thin layer must have remained attached to the uterine muscle. The uterine wall, though thin, in some places seemed to be of firmer consistency than the placental tissue itself. The method of removal was the same that I use in removing placental tissue in incomplete abortions, although this was much more difficult. The bleeding was rather free during this procedure, and the uterus was packed tightly. The packing was removed after thirty-six hours, and no further excessive bleeding occurred. The patient's temperature was 102 for two days. The pulse was rapid, and she appeared rather sick during this time. The remainder of the puerperium was uneventful.

There can be no doubt that the manual removal of the placenta under these circumstances is extremely dangerous. It is also true that hysterectomy is not entirely safe, and is destructive. Waiting several days for the placenta to be passed has the disadvantage of infection, and therefore increases the danger if any operative procedure is taken.

The number of these cases reported, or the collective experience in treating them, has not been sufficiently great to justify necessarily a conclusion as to the best manner of treating them.

It is my belief that if extreme care is used, the separation being made really between the tips of the fingers of the two hands, this effort is justified.

512 Taylor Building.

## CHANCRE IN A JUVENILE WITH GENERAL PARALYSIS, DURING ANTISYPHILITIC TREATMENT

CLYDE E. SHINKLE, M.D., CINCINNATI

This case of superinfection with syphilis is put on record because of the comparative rarity of the condition and the unusual combination of available data. As comment would be merely repeating what has been said before, the case and the data will be merely stated for what they may be worth.

*History.*—B. N., a colored lad, aged 16, entered the Cincinnati General Hospital, Jan. 18, 1924, complaining of a sore on the penis. The history was obtained from his grandmother, who had brought him up. She stated that the boy's mother was known to have syphilis, and that the patient had been treated for syphilis during his infancy. He had the usual childhood illnesses, but no sickness of consequence until 1918, when he had convulsions. He was always slow mentally, but had been worse the last two years. He did not get on well at school, but his exact school history was not available. He was never unruly, but sat quietly about the house. Recently, he had prayed a good deal, and had stated that he had religion and that he was to save the world. He heard voices and asserted that he at times saw God. He had been under observation of the outpatient clinic for two years, and was sent in at its suggestion. The sore on the penis was only recently noticed.

*Examination.*—The boy was poorly nourished and poorly developed. He sat quietly about the ward, occasionally grimacing and listening to voices. When accosted, he answered questions in a stammering (not a slurring) speech. He readily admitted sexual irregularity, but saw nothing incongruous in this and his voluble professions of religion. His intelligence was almost nil; he could not do simple addition and subtraction. Occasionally, he held bizarre poses into which he had been put. There was indolent general adenopathy. The pupils reacted sluggishly; there was questionable deviation of the tongue, and the knee jerks were exaggerated. Romberg's test was negative. The penis showed a ragged, dirty sore, as big as a nickel, involving the prepuce and the sulcus. At one end of this sore was a hard red nodule, the size of a large pea. The laboratory findings proved previously existing spyhilis, the syphilitic character of this nodule and the existence at present of general paralysis.

The condition changed little under treatment, and the patient was taken home against advice, February 6. February 21 he was readmitted, and on the 26th he was sent to Longview Hospital for the insane, where he now is.

*Laboratory Findings.*—In March, 1922, at the age of 14, the mental age was 9 years and 4 months.

In January, 1924, at the age of 16, the mental age was 7 years and 8 months.

In February, 1923, the blood Wassermann reaction was positive.

Intermittent antisyphilitic treatment was well carried out until January, 1924; several tests were made. The blood Wassermann reaction was positive. The Wassermann reaction of the spinal fluid was positive; globulin was increased; there were from 17 to 27 cells to each cubic millimeter. The gold curve was in the general paralytic zone. Dark field examination showed *Spirochaeta pallida* in the the nodule of the sore on the penis.

### SUMMARY

This case corresponds well with those reported in the literature as cases of superinfection or reinfection of patients with syphilis. This occurrence contradicts most of our present beliefs about syphilis and the Wassermann reaction. This case was one of proved chancre in a juvenile patient with proved general paralysis during antisyphilitic treatment.

Groton Building.

## TRUE AND FALSE PRESYSTOLIC THRILLS*

MORRIS H. KAHN, M.D., NEW YORK

In 1919, I[1] had the opportunity to observe a differential diagnostic point between the thrill in organic mitral stenosis and that which occurs in nonorganic heart conditions of the neurocirculatory type. I have since been able to confirm my statements at that time.

The thrill in neurocirculatory asthenia, as also in some cases of thyrotoxic heart, is due to the diffusion of the apex beat as it strikes over several rib spaces with a forcible or jerky move-

Fig. 1.—Cardiogram from a case of neurocirculatory asthenia.

ment. This systolic shock gives to the palpating hand the impression of a presystolic thrill. The thrill is recognized as a rumble characteristically when the chest-piece of the stethoscope covers a whole interspace, being applied over two ribs.

If now the stethoscope is placed obliquely on the chest wall so that its edge lies within an interspace and its mouth inclines toward either the upper or the lower rib, the rumble disappears, This is characteristic and almost always to be noted when there is a thrill in these cases.

Fig. 2.—Cardiogram from a case of mitral stenosis.

In mitral stenosis, however, the distinct presystolic wave persists against adventitious attempts to obliterate it. The cardiogram in mitral stenosis is also different from that of this condition.

140 West Sixty-Ninth Street.

# New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

**MEAD'S POWDERED PROTEIN MILK.**—A modified milk preparation having a relatively high protein content and a relatively low carbohydrate content. Each 100 Gm. contains approximately protein 37 Gm., butter fat 31 Gm., free lactic acid 3 Gm., lactose 19 Gm., and ash 4.6 Gm.

*Actions and Uses.*—When suitably mixed with water, powdered protein milk is said to be useful for correcting intestinal disorders of infants and children.

*Dosage.*—For the majority of conditions, powdered protein milk should be administered in small quantities according to age and condition of the patient, after a period of starvation of from twelve to forty-eight hours. Suitable carbohydrates may gradually be added to the preparation as indicated by the clinical conditions.

To prepare protein milk for use, 1 ounce (3½ tablespoonfuls) of powdered protein milk is placed on the surface of 11 fluidounces of cold, previously boiled, water and the mixture beaten with an egg beater or wire whip. Greater dilutions are sometimes prescribed. Carbohydrates, if prescribed, are dissolved in a little warm water and added to the protein milk, and then sufficient boiled water is added to make 12 fluidounces. One hundred Cc. of the finished mixture, without additional carbohydrate, contains approximately 3.1 Gm. of protein, 2.5 Gm. of butter fat, 1.6 Gm. of lactose, and 0.4 Gm. of ash.

Manufactured by Mead Johnson and Company, Evansville, Ind. No U. S. patent or trademark.

**POLLEN ANTIGENS-LEDERLE** (See New and Nonofficial Remedies, 1924, p. 252).

The following products have been accepted:

*Giant Ragweed Pollen Antigen-Lederle; Green Sage Pollen Antigen-Lederle; Lambs Quarters Pollen Antigen-Lederle; Marsh Elder Pollen Antigen-Lederle; Olive Pollen Antigen-Lederle; Pasture Sage Pollen Antigen-Lederle; Southwestern Ragweed Pollen Antigen-Lederle; Western Water Hemp Pollen Antigen-Lederle; Western Ragweed Pollen Antigen-Lederle.*

Prepared by the method given for Pollen Antigens-Lederle (New and Nonofficial Remedies, 1924, p. 253).

**POLLEN ALLERGEN SOLUTIONS-SQUIBB** (See New and Nonofficial Remedies, 1924, p. 251).

The following Pollen Allergen Solutions-Squibb are marketed in packages of two tubes diagnostic solution with bulb and needles; in packages of six tubes (assorted) diagnostic solution with bulb and needles; in 5 Cc. vials for treatment only (1 Cc. = 0.025 Mg. of pollen nitrogen):

*Annual Salt Bush Pollen Allergen Solution-Squibb; Arizona Ash Pollen Allergen Solution-Squibb; Arizona Cottonwood Pollen Allergen Solution-Squibb; Arizona Walnut Pollen Allergen Solution-Squibb; Ash Pollen Allergen Solution-Squibb; Black Mulberry Pollen Allergen Solution-Squibb; Black Walnut Pollen Allergen Solution-Squibb; Brome Grass Pollen Allergen Solution-Squibb; California Black Walnut Pollen Allergen Solution-Squibb; Careless Weed Pollen Allergen Solution-Squibb; Cedar Pollen Allergen Solution-Squibb; Cocklebur Pollen Allergen Solution-Squibb; Corn Pollen Allergen Solution-Squibb; Dark Leaved Mugwort Pollen Allergen Solution-Squibb; False Ragweed Pollen Allergen Solution-Squibb; Hickory Pollen Allergen Solution-Squibb; Johnson Grass Pollen Allergen Solution-Squibb; Lamb's Quarters Pollen Allergen Solution-Squibb; Marsh Elder Pollen Allergen Solution-Squibb; Nettle Pollen Allergen Solution-Squibb; Oak Pollen Allergen Solution-Squibb; Pigweed Pollen Allergen Solution-Squibb; Pine Pollen Allergen Solution-Squibb; Poplar Pollen Allergen Solution-Squibb; Rye Pollen Allergen Solution-Squibb; Sandbur Pollen Allergen Solution-Squibb; Shadscale Pollen Allergen Solution-Squibb; Sheep Sorrel Pollen Allergen Solution-Squibb; Slender Ragweed Pollen Allergen Solution-Squibb; Sweet Vernal Grass Pollen Allergen Solution-Squibb.*

The following Pollen Allergen Solutions-Squibb are marketed in packages of two tubes diagnostic solution with bulb and needles; in packages of six tubes (assorted) with bulb and needles; in treatment sets consisting of:

Set A: ten vials containing for each consecutive dose (Nos. 1 to 10, inclusive) 0.00005, 0.0001, 0.0002, 0.0004, 0.0008, 0.0016, 0.0032, 0.0064, 0.0128 and 0.025 Mg. of pollen nitrogen, respectively, ten vials of sterile diluent with which to make the proper dilution of each dose, 1 tube of pollen allergen for diagnosis only, and a syringe.

Set B: five vials containing for each consecutive dose (Nos. 1 to 5, inclusive) 0.00005, 0.0001, 0.0002, 0.0004 and 0.0008 Mg. of pollen nitrogen, respectively, five vials of sterile diluent with which to make the proper dilution of each dose, 1 tube of pollen allergen for diagnosis only, and a syringe.

Set C: five vials containing for each consecutive dose (Nos. 6 to 10, inclusive) 0.0016, 0.0032, 0.0064, 0.0128 and 0.025 Mg. of pollen nitrogen, respectively, five vials of sterile diluent with which to make the proper dilution of each dose, and a syringe.

Set D: five vials (dose No. 10) each containing 0.025 Mg. of pollen nitrogen, five vials of sterile diluent with which to make the proper dilution of each dose, and a syringe:

*Bermuda Grass Pollen Allergen Solution-Squibb; June Grass Pollen Allergen Solution-Squibb; Mugwort Pollen Allergen Solution-Squibb; Orchard Grass Pollen Allergen Solution-Squibb; Ragweed Pollen Allergen Solution-Squibb; Sagebrush Pollen Allergen Solution-Squibb; Timothy Pollen Allergen Solution-Squibb; Western Ragweed Pollen Allergen Solution-Squibb.*

Prepared by the method given for Pollen Allergen Solutions-Squibb (New and Nonofficial Remedies, 1924, p. 252).

* From the department of cardiovascular diseases, Beth Israel Hospital.

1. Kahn, M. H.: Am. J. M. Sc. **157**: 634 (May 19) 1919.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Five dollars per annum in advance

*Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.*

SATURDAY, MAY 31, 1924

## INSULIN IN THE BLOOD

Present-day physiology postulates at least two procedures whereby tissues capable of detectable functioning are aroused to activity. One mode of stimulation is through the direct intermediation of the nervous system whereby directive impulses are carried to the active cells, so that they respond. The movements of our skeletal muscles are, for the most part, initiated and coordinated through such a nervous mechanism. There remains, however, the more recently appreciated possibility that function may be promoted in the body through the influence of chemical substances that reach the reactive tissues. In this way hormones act on various groups of cells through the intermediation of the circulation that transports the potent compounds, rather than as the direct result of nervous impulses. The growing recognition of stimulation through humoral as well as nervous paths in the organism may properly be regarded as one of the contributions of research during the passing quarter century.

It is, of course, more than likely that the hormones that are contributed by endocrine structures are present at times, if not continually, in the blood stream and the lymph that serves as an intermediary between the vascular circulation and the body tissues. It is scarcely conceivable, for example, that the thyroid hormone should function at long distance from the thyroid gland in any way except through its escape into the blood and subsequent distribution thereby. The formulation of such an hypothesis is a far easier task, however, than the direct demonstration in the blood of the hormone concerned. The quantity of the chemical excitant present at any moment in an analyzable sample of blood may be so small as to escape detection by current modes of investigation. In the course of a few hours, a hundred grams of well defined amino-acids may enter the circulation by absorption from the alimentary tract; nevertheless, it requires the most refined technic of a skilled biochemist to detect the traces that are being distributed at the moment when a blood sample is withdrawn for examination. Assays of the blood for a suprarenal hormone of the type of epinephrin have suggested its occurrence in a dilution of one part per billion.[1] The thyroid hormone is traceable only through its content of iodin, and is almost equally elusive in the blood at any moment.

Insulin from the pancreatic tissue is presumably also carried by the blood stream to the liver and other tissues. Even before the discovery of insulin as it is recognized today, the late A. H. Clark[2] observed that the perfused pancreas consumed no sugar, but that the amount consumed by the heart was greatly increased when the perfusion fluid was first passed through the pancreas and then through the heart. His results afforded strong circumstantial evidence of the presence in normal blood of a hormone necessary to the utilization of carbohydrates by the tissues. Best, Scott and Banting[3] of Toronto have succeeded in preparing from the bloods of normal animals a substance that produces hypoglycemia in normal rabbits. This is an outstanding characteristic of insulin. The experiments tend to show also that this substance is reduced in amount in the blood of completely diabetic dogs. As would be expected, the substance is present in greater quantities in the blood of hypoglycemic rabbits than in that of normal rabbits. If these indications of the occurrence of insulin in the blood normally prove to be correct, the outcome will be another triumph for the experimental method.

## EMETIN AND AMEBIASIS

Enthusiasm with respect to the success or promise of current modes of treating amebic dysentery has waxed and waned from year to year. To the critical student, this means that much remains to be learned. The history of medicine is replete with instances of alternating satisfaction and discouragement respecting special types of therapy. Many physicians, indeed, probably most practitioners in this country, have paid scant attention to amebic dysentery, because they have regarded it as an extreme rarity. Nevertheless, it is stated that the disease, with liver abscess as a frequent sequel, occurs over the greater part of the United States.[4]

The difficulties in the way of a better scientific understanding of amebic dysentery have been manifold. At the outset, much confusion arose from the fact that various amebas, some of which do not attack the tissues or cause dysenteric symptoms but which are easily confused with the pathogenic *Endameba histolytica*, may inhabit the alimentary tract of man. Progress in the study of parasitic microbiotic invaders has usually followed whenever it has become possible to grow them in cultures outside the body. Methods applicable to

1. Hoskins, R. G.: The Relation of the Adrenals to the Circulation, Physiol. Rev. **2**: 343 (July) 1922.
2. Clark, A. H.: Johns Hopkins Hosp. Rep. **18**: 229, 1917.
3. Best, C. H.; Scott, D. A., and Banting, F. G.: Insulin in Blood, Tr. Roy. Soc., 1923, Sec. V, p. 81.
4. Chandler, A. C.: Animal Parasites and Human Disease, New York, John Wiley & Sons, 1922.

*Endameba histolytica* have not yet been devised with success. Consequently, observation of the amebacidal effects of various drugs has necessarily been confined to the more easily cultivated but less harmful types, and the inferences have been transferred to the pathogenic varieties. Also the discovery of a species of higher animals that might serve for the experimental investigation of amebic dysentery has involved difficulties. Kittens, however, have been found to be readily susceptible to infection with amebas. Finally, the demonstrated circumstance that, for some reason or other, infection with *Endameba histolytica* by no means always causes dysentery presents a factor in unexplained variable resistance or immunity that must be reckoned with in evaluating the results of any form of treatment in man.

It has long been known that ipecac sometimes has a marked remedial effect on dysentery; and the observation of Vedder that the alkaloid emetin, prepared from ipecac, inhibits the development of cultures of amebas was a noteworthy contribution to the study of amebiasis. It was due to Vedder's suggestion that emetin was tried in amebic dysentery, and of late the alkaloid has been administered in ways other than orally. The newer method of treatment has been credited with many instances of success in human patients, though it has by no means been either ideal or unfailing in its results. Considerable confusion has been introduced, however, by the assertions of Dale and Dobell [5] that they were unable to eradicate or even control an acute amebic infection in kittens, the classic experimental subjects, with emetin. Furthermore, animals that were receiving prophylactic doses of the drug could be successfully infected with amebas. A reinvestigation of the question by Sellards and Leiva [6] indicates, on the other hand, that experimental amebic dysentery in cats responds to emetin in fundamentally the same way as the spontaneous disease in man. These investigators do not imply that emetin or any other drug in use at present constitutes a satisfactory treatment for the chronic advanced cases of amebic dysentery. They do encourage the continued study of the therapy along the lines already begun. Sellards and Leiva regard the clinical evidence as very convincing that the normal person exhibits considerable natural resistance to *Endameba histolytica*. Emetin is pictured as moderately toxic for amebas in vitro, and distinctly toxic for mammals. Even though the therapeutic doses are small, it seems unlikely to these investigators that the parasite in the host can escape the toxic action of emetin. They look on recovery from amebic dysentery after treatment in man as resulting from two factors: the natural resistance of the host, and the moderate amebacidal action of the drug used. A lowering of either of these factors allows the disease to progress.

5. Dale, H. H., and Dobell, C.: J. Pharmacol. & Exper. Therap. **10**: 399, 1918.

6. Sellards, A. W., and Leiva, L.: The Experimental Therapy of Amoebic Dysentery, J. Pharmacol. & Exper. Therap. **22**: 467 (Jan.) 1924.

## THE RELIEF OF INTRACRANIAL SYMPTOMS IN CARBON MONOXID ASPHYXIA

The growing menace of carbon monoxid as a source of hazard to mankind in various walks of life is beginning to find widespread appreciation.[1] A danger that was formerly confined largely to poisoning with illuminating gas through accident or with suicidal intent has been greatly extended by the advent of the automobile, the exhaust gases of which contain carbon monoxid. Not only does asphyxiation from the gas occur with alarming frequency today, but there are signs that a subacute asphyxiation from the same cause may be far more common than has heretofore been supposed. The incipient symptoms include headache, fatigue, nausea and disturbances of temper. The precise causation is by no means entirely clear.

In severe carbon monoxid asphyxiation, the chief damage is usually wrought on the central nervous system. This apparently selective action of the gas has led, as Haggard [2] has pointed out, to the belief that carbon monoxid exerts a specific toxic action on nervous tissue. From the clinical and pathologic standpoints, the acceptance of this specificity affords an easy explanation of an otherwise difficult problem. Physiologic evidence indicates, however, as Haggard adds, that aside from its displacement of oxygen from the blood, carbon monoxid is as innocuous as nitrogen. The nervous sequelae of the poisoning follow as one of a train of profound physiologic alterations, due primarily to the anoxemia induced by the combination of carbon monoxid with hemoglobin and exclusion of oxygen. Haggard has grown isolated nervous tissue cells amid concentrations of carbon monoxid as high as 79 per cent. The fact that the delicate neuroblasts will propagate in an apparently normal manner when exposed to a tension of carbon monoxid so great as to be in the body physiologically impossible is conclusive evidence that carbon monoxid does not exert a specific toxic action on nervous tissue.

In more recent studies of the Medical School of Harvard University by Forbes, Cobb and Fremont-Smith,[3] carbon monoxid inhalation was found to cause in animals and in man a rise in intracranial pressure, which shows two distinct elevations: the first occurs during asphyxia and is caused by congestion due to a rise in arterial pressure; the second occurs after asphyxia and is caused probably by edema. The intracranial pressure is of sufficient height to produce transient eyeground changes observable by the ophthalmoscope. By way of treatment, the Boston investigators have applied the recently advocated scheme of reducing

1. Henderson, Yandell; and Haggard, H. W.: Health Hazard from Automobile Exhaust Gas in City Streets, Garages and Repair Shops, J. A. M. A. **81**: 385 (Aug. 4) 1923. Resuscitation from Gas Poisoning, editorial, ibid. **81**: 581 (Aug. 18) 1923; The Health Hazard of the Automobile, ibid. **81**: 932 (Sept. 15) 1923.

2. Haggard, H. W.: Studies in Carbon Monoxide Asphyxia, II, The Growth of Neuroblast in the Presence of Carbon Monoxide, Am. J. Physiol. **60**: 244 (April) 1922.

3. Forbes, H. S.; Cobb, Stanley; and Fremont-Smith, Frank: Cerebral Edema and Headache Following Carbon Monoxid Asphyxia, Arch. Neurol. & Psychiat. **11**: 264 (March) 1924.

cerebral volume. Intravenous injection of hypertonic saline solution, which was known to cause absorption of water by the blood from the tissues, reduced the increased brain bulk and relieved compression. In man this procedure has already been found to relieve a stuporous condition, accompanied by an abnormally high spinal fluid pressure and headache, of twenty-four hours' duration, due to asphyxia by illuminating gas. Heretofore, emphasis has been directed almost exclusively to the speedy improvement of respiration by any means calculated to increase the intake of oxygen and the displacement of carbon monoxid from the victim of the gas. Perhaps also the added therapeutic scheme of relieving the carbon monoxid headaches by reducing the intracranial congestion and edema will find wholesome application. Such helps will be needed so long as the industrial and domestic hazards of the gas continue to be so prominent in the everyday life of our larger communities.

## THE ACID REFLEX OF THE PYLORUS

The activities of the sphincter of the pylorus are an important part of the process of alimentation. On their well ordered routine, the proper digestive delay of ingested food in the stomach and likewise the timely discharge of the chyme into the duodenum largely depend. Either phase of the gastric functions may be unduly hastened or retarded, as the case may be, when the pyloric sphincter behaves abnormally. The conventional description of the mechanism of opening and closing the pylorus has given much prominence in the last two decades to so-called "acid control." An actual quotation from a textbook [1] will serve to illustrate this view, according to which the pylorus opens whenever free hydrochloric acid of sufficient concentration is present in the stomach. The opening of the pylorus allows the escape of a part of the acid stomach contents into the duodenum. As soon as the acid comes into contact with this portion of the intestinal tract, however, the pylorus is made to close, and it remains closed until the acid in the duodenum is neutralized through the flow of the pancreatic juice and bile into this portion of the intestine. The presence of acid in the duodenum is the determining condition for the flow of juice from the pancreas. As the acid in the duodenum becomes neutralized—so the theory proclaims—the stimulus to the closure of the pylorus is weakened, until the acid in the stomach once more opens the sphincter. Another portion of food in consequence escapes from the stomach, the pylorus closes once more, and the cycle is repeated.

This fascinating hypothesis of a seemingly purposeful performance was built largely on experiences gained in the study of animals. More recent studies on man by means of roentgenographic methods have furnished a different picture of the behavior of the pyloric sphincter in the human alimentary tract. In the observations of McClure, Reynolds and Schwartz [2] of Boston, for example, finely divided carbohydrate, protein or fatty foods began to leave the normal human stomach within a comparatively few minutes after their initial ingestion. Under normal conditions, the human pyloric sphincter opens regularly at the approach of each antral peristaltic wave, allows chyme to pass through into the duodenum during an appreciable length of time, and closes when the antral peristaltic wave has spent itself. The introduction of hydrochloric acid solutions into the first, second or third portions of the normal human duodenum either produced no effect on the opening of the pyloric sphincter, as observed by means of the fluoroscope, or produced effects that were interpreted as the result of abnormal irritation of the duodenal mucosa. Neutralization of the contents of the first portion of the duodenum did not prevent the closing of the pyloric sphincter.

Further evidence that acid is at any rate not the principal factor controlling the opening and closure of the pylorus has recently been secured on animals by Carlson and Litt [3] at the University of Chicago. Under their experimental conditions, water, acids or alkalis acting on the antrum mucosa failed to produce an effect on the tonus of the pylorus. This is true whether the pylorus was in hypertonus and spasm, in moderate tonus or atonic. These substances acting in the stomach caused neither relaxation nor contraction of the pylorus. These results, therefore, offer no support to the theory that acid acting on the antrum mucosa relaxes the pylorus. Irritation of the duodenal mucosa by a variety of stimuli—water, acids or alkalis—induces contraction of the pylorus. The Chicago physiologists point out that the pylorospasm induced by acid and alkalis in the duodenum is more marked than that induced by water in the duodenum. The stronger the acid or alkali, the stronger and the more prolonged is the pylorospasm. The hypothesis of a specific "acid" reflex of the pylorus must probably be abandoned.

1. Fisher, M. H.: Physiology of Alimentation, 1907.

2. McClure, C. W.; Reynolds, L., and Schwartz, C. O.: On the Behavior of the Pyloric Sphincter in Normal Man, Arch. Int. Med. **26**: 410 (Oct.) 1920.

3. Carlson, A. J., and Litt, S.: Studies on the Visceral Nervous System: On the Reflex Control of the Pylorus, Arch. Int. Med. **33**: 281 (March) 1924.

**Automobile Fatalities in Death Registration Area in 1922.**—Returns compiled by the Bureau of the Census show that during 1922 there were 11,666 deaths resulting from accidents caused by automobiles and other motor vehicles (excluding motor-cycles) in the death registration area of the United States (exclusive of Hawaii), that area comprising 85 per cent. of the total population of continental United States in 1922. The death rate from this cause was 12.5 per hundred thousand population in 1922, 11.5 in 1921, 10.4 in 1920, 9.4 in 1919, 9.3 in 1918, and 9 in 1917. In the twenty-seven states for which data for 1917 are available, the actual number of deaths from this cause increased from 6,014 in that year to 9,581 in 1922, the corresponding rates for these two years being 8.7 and 12.9, respectively, or an increase during the period of very nearly 50 per cent.—*Pub. Health Rep.* **39**:754 (April 11) 1924.

# Current Comment

## PENETRABILITY OF THE NASOPHARYNX

The mucous membranes of the nasopharynx attract attention to themselves most frequently because they are the seat of inflammatory reactions that lead to the production of mucus to an annoying extent and sometimes to disagreeable obstruction of the upper respiratory passages. It is not customary to think of the pharyngeal and nasal membranes ordinarily as places for ingress of substances into the organism. Nevertheless there is growing evidence that drugs in solution can be absorbed from these surfaces; and there are numerous well known indications that the mechanical obstacle offered by the mucous membranes in general to particulate matter, such as micro-organisms, is by no means a perfect safeguard. When penetrability by bacteria has apparently occurred without the evidence of demonstrable morphologic lesions, some observers have assumed the existence of local physiologic or functional injury, such as congestion or catarrhal inflammation. Recent experiments by Blumgart [1] of Boston corroborate earlier evidence that the nasopharynx constitutes an area of peculiar physiologic significance with respect to absorption. They indicate that crystalloids, colloids and, to a lesser extent, particulate matter traverse the nasopharyngeal mucous membrane by being absorbed by way of the olfactory nerve cells and thence to the systemic lymphatics. Blumgart ventures to suggest that the anatomic design of the upper respiratory passages that serve to prevent the progress of particles to the more vulnerable pulmonary passages, the power of mucus to dissolve organisms, and the ability of the nasopharynx to absorb such decomposition products and transmit them to the underlying lymphatics constitute a chain of forces splendidly adapted to the creation of natural active immunity. For the moment, however, the feature of outstanding importance is the demonstration of a path of transport through olfactory cells into the lymphatic meshwork beneath the nasal mucous membrane.

## THERMAL ENVIRONMENT AND BASAL METABOLISM

The estimation of basal metabolism occupies an important place among the procedures whereby the clinician determines the nature of certain abnormalities of function and follows the progress of remedial measures that may be instituted. The term basal metabolism is used to refer to the minimal rate of energy transformation prevailing in the body. A physiologist [2] has described it as the oxidation that still goes on when the "fires" of the body are "banked." It can be measured at a time when a person is not digesting any food (in man, from fourteen to sixteen hours after the last meal) and when lying perfectly still so that voluntary muscles, other than those of respiration, are entirely at rest and have been resting for not less than half an hour. Under these circumstances, he adds, the body is doing no external work and is metabolizing merely to the extent required for maintaining circulation, constant body temperature and the general equilibrium of vital processes. The heat production indicated in the measurement of basal metabolism thus becomes an excellent index of general tone or well-being. F. G. Benedict, to whom we owe some of the fundamental researches in this field, notably the development of suitable apparatus, has recently remarked that the determination of basal metabolism was a physiologic curiosity ten years ago, whereas now it has become a pathologic necessity in the clinical world. He has recently investigated certain criticisms of current methods of making metabolism tests. It has been argued, for example, that as heat is in part produced to keep the body warm, and as people, even when clothed and lying covered, are producing heat to combat the cooling effect of the surrounding air, all measurements of the minimum heat production must be made not in the air under ordinary conditions, but with the body immersed in bath water at 98 F. Under such conditions for making the tests, the heat production, we are told, may be one-third lower than under ordinary conditions. Experiments conducted by the Benedicts [3] to test this point showed that if the metabolism is measured, first, with the subject lying, clothed and covered with one thin blanket, in a laboratory room at 60 F., and then with the body immediately thereafter immersed in a bath at 98 F., the heat production not only is not lowered in the bath, but usually is slightly increased. The extra heat is stored to warm up the large amount of peripheral body tissue that even with a normally clothed man is considerably below so-called body temperature, 98.6 F. When this warming is accomplished, the temperature of the whole body will increase until again the heat loss just balances the heat production. It is satisfying to receive such assurance that a widely adopted procedure on which diagnosis and therapeutic judgment have often been based of late is not radically incorrect or unscientific.

## A DISCARDED THEORY OF TETANY

Any one who attempts the study of the problems of tetany, a phenomenon of clinical as well as purely experimental significance, is confronted by a confusion of observations and theories that is likely to discourage all except the most persistent persons from the effort to discover the truth. The foremost types of disorder that is attended with obvious muscular twitchings or even a latent tendency to such uncoordinated contractile responses are seen in gastric tetany and in so-called parathyroid tetany. Recent studies make it appear probable that idiopathic tetany is identical with or closely related to the condition following absence of the parathyroids. It has long been assumed, partly on the basis of analogy and consequent conjecture, that the symptoms of tetany are due to some toxic substance that circulates in the body and accumulates as the result of the absence of parathyroid function. Detoxication,

1. Blumgart, H. L.: A Study of the Mechanism of Absorption of Substances from the Nasopharynx, Arch. Int. Med. **33**: 415 (April) 1924.
2. Mitchell, P. H.: A Textbook of General Physiology, New York, McGraw-Hill Book Company, 1923.
3. Benedict, F. G., and Benedict, C. G.: The Influence of Thermal Environment upon Basal Metabolism, Science **59**: 447 (May 16) 1924.

however vague the conception that it presents, has long been a favorite explanation for the indispensable activities of some of the glandular structures for which other uses have not yet been clearly indicated. The liver and thyroids, for example, have long been assumed by some writers to detoxicate circulating harmful products. In the case of the parathyroids, this hypothesis seemed to receive additional weighty support when it was announced from independent places that derivatives of guanidin are excreted in the urine by animals in a state of tetany after ablation of the parathyroids. Furthermore, there are a number of resemblances between the symptoms of intoxication with guanidin and those following parathyroidectomy, so that Paton and his collaborators in Glasgow have sponsored the widely discussed theory of intoxication with guanidin bases as an explanation of some of the manifestations attending lack of the parathyroids. Greenwald [1] has recently brought strong criticism to bear against the validity of this doctrine. He has attacked the evidence for the alleged presence of guanidin derivatives in the urine, pointing out that they are readily formed from creatin by the chemical manipulations incident to their supposed isolation. His own careful examinations have failed to yield any support to the idea that tetany is due to intoxication with nitrogenous bases. This brings us back to the hypothesis that a disturbance of inorganic metabolism is the immediate exciting cause of tetany. There are, Greenwald insists, two and only two, well authenticated metabolic changes after parathyroidectomy. One is the lowered calcium content of the serum or plasma, and the other is the diminished excretion of phosphorus in the urine. These must be regarded as being intimately connected with the sequence of symptoms. No theory of the causation of tetany, he concludes, can be considered adequate if it fails to take both of these into consideration. The problem becomes greatly simplified if the detoxication theory may at length be abandoned, or at least returned to its supporters to supply more convincing evidence.

1. Greenwald, I.: Are Guanidines Present in the Urines of Parathyroidectomized Dogs? J. Biol. Chem. 59: 329 (March) 1924.

# Association News

## THE CHICAGO SESSION

**For prompt registration, bring with you to the Chicago Annual Session your 1924 Fellowship pocket card.**

### Rush Medical College Faculty and Alumni Dinner

The Rush Medical College Faculty and Alumni Dinner at the Auditorium Hotel, Chicago, at 6:30 p. m., Wednesday, June 11, will be in honor of Dr. Frank Billings. Dr. Charles A. Parker, 7 West Madison Street, Chicago, of the Alumni Association of Rush Medical College, is in charge of arrangements for the dinner.

### Reunion of Camp Grant Base Hospital Officers

A reunion of the officers of the Base Hospital at Camp Grant (1917-1920) will be held at a dinner at the Hotel Sherman in Chicago, Wednesday, June 11, at 6:30 p. m. Those intending to be present are requested to communicate immediately with Dr. Frank Phifer, 7 West Madison Street, Chicago. Service à la ammunition cart.

### Johns Hopkins Medical Alumni

The Johns Hopkins Medical Alumni will hold their annual dinner at the Hotel Sherman, Wednesday, June 11, at 7 p. m. All Hopkins men are urged to be present. Dr. Herman P. Davidson, Room 821, 22 East Washington Street, Chicago, secretary of the Illinois Medical Alumni of Johns Hopkins, will make reservations for the dinner.

### Jefferson Medical College Alumni Association

There will be a dinner for the alumni of the Jefferson Medical College at the Sherman Hotel at 6:30 p. m., Wednesday, June 11. Several of the Jefferson Medical College Faculty will be present. Reservations may be made through Dr. Frank M. Phifer, 7 West Madison Street, Chicago.

### Class of 1904 Rush Medical College

The Class of 1904 Rush Medical College will have its reunion at a midnight frolic at the Auditorium Hotel, Wednesday, June 11, at 11 p. m. Dr. Austin A. Hayden, Room 2009, 25 East Washington Street, Chicago, will provide information about the program.

### Return Railroad Certificates Necessary for Reduced Fare

The attention of those who will attend the Seventy-Fifth Annual Session of the American Medical Association is once more, and finally, called to the fact that return certificates will be necessary for securing reduced railroad rates. These certificates must be obtained from ticket agents at the time tickets to Chicago are purchased. These certificates must be signed by the Secretary of the Association and properly validated by special agents of the railroads, after which they will entitle their holders to one-half fare for the return trip to their homes. Validation must be made between June 9 and June 13. The certificates will not be honored after June 17.

**For prompt registration, bring with you to the Chicago Annual Session your 1924 Fellowship pocket card.**

### Physicians' Golf Association

The dinner which was to terminate the meet of the Physicians' Golf Association, Monday, June 9, at Olympia Fields Country Club, will not be held. The members of the golf association plan to attend the dinner to Dr. George H. Simmons, editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

### Hygeia—Prize Contest for Health Posters

The response of high school pupils in all parts of the United States and Canada to the prize contest for health posters has far exceeded the expectations of the Editorial Board. More than 1,400 posters have been submitted at the time this is written. They are arriving at the rate of 200 to 300 a day. The originality shown in some of the health slogans, the telling manner in which they are represented, the drawing and exquisite coloring are quite remarkable as coming from pupils of high school age.

A display of a few hundred of the posters has been arranged on the sixth floor of the A. M. A. Building, at 535 North Dearborn Street. The members of the Association in attendance at the annual session are cordially invited to visit this exhibit.

### Alumni of Boston Floating Hospital

The Boston Floating Hospital Alumni are planning to hold a luncheon at the Chicago City Club, 315 Plymouth Court, on Wednesday, June 11, at 12:30 o'clock.

Dr. L. W. Smith, resident physician of the Boston Floating Hospital, is in charge of arrangements for the lucheon.

**For prompt registration, bring with you to the Chicago Annual Session your 1924 Fellowship pocket card.**

# Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

## ARKANSAS

**Hospital for Little Rock.**—The Missouri Pacific Railroad will erect a $750,000 hospital at Little Rock on Lincoln Avenue. It is expected that the new institution will be ready for occupancy about October 1 of this year.

## CALIFORNIA

**Personal.**—Dr. Ralph W. Homer has been reappointed physician to Ventura County.——Dr. George F. Pache, Angels Camp, has been appointed health officer of Calaveras County.

**State Medical Meeting.**—At the fifty-third annual meeting of the California Medical Association, May 12-15, at Los Angeles, the following officers were elected for the ensuing year: president, Dr. Edward N. Ewer, Oakland; vice president, Dr. Harry E. Alderson, San Francisco; secretary, Dr. Emma W. Pope, San Francisco, and editor, Dr. William E. Musgrave, San Francisco. The next meeting will be held at Yosemite National Park in 1925. At that meeting, a bronze tablet will be dedicated to Dr. Lafayette Houghton Bunnell, who was one of the first party of white men to enter the Yosemite Valley in March, 1851. He proposed the name Yosemite and was the first to proclaim its beauty and wonders to the world. Dr. Howard A. Kelly, Baltimore, who brought this matter to the notice of the California Medical Association, has been invited to participate in the dedication ceremonies.

## COLORADO

**Study of Indian Psychology.**—Prof. Thomas R. Garth, under the auspices of the educational research bureau of the University of Denver, is studying Indian psychology, covering intelligence, achievement, will, temperament, musical talent and color preference. Three expeditions have been sent out, one to Chilocco, Okla., another to Santa Fé and Albuquerque, N. M., and the third on the Ute and Navajo reservations in Colorado and New Mexico.

## CONNECTICUT

**Sentenced for Manslaughter.**—According to reports, Dr. Joseph T. Spoth, Falls Village, was sentenced to from ten to fifteen years in the state prison by Judge Brown in the County Superior Court, May 13, when he pleaded guilty to a charge of manslaughter in connection with the death of his wife, March 19. Dr. Spoth is 64 years of age.

**Juvenile Clinic.**—Through the generosity of Mrs. H. H. Jenkins, the Hartley Corporation has placed at the disposal of the juvenile courts, public schools, social agencies and parents of Connecticut a clinic for child study at Hartford. The clinic, which will be known as the Helen Hartley Jenkins Juvenile Clinic, will make a physical, psychologic, psychiatric and social study of each child referred to it, and when needed, will recommend a method of treatment. Dr. Thomas W. Salmon, professor of psychiatry, Columbia University, New York City, will conduct the clinic, and he has appointed Dr. Otto G. Wiedman medical director and psychiatrist, and Dr. Harold A. Bancroft assistant psychiatrist.

## DISTRICT OF COLUMBIA

**District Society News.**—The bill which passed the House, April 4 (THE JOURNAL, April 19, p. 1271), amending the charter of the Medical Society of the District of Columbia, has passed the Senate and will now go to the President for signature.

**Deputy Coroners' Bill Passes Senate.**—The bill to amend section 196 of the Code of Law for the District as follows, has been passed by the Senate:

Deputy coroners: The commissioners of said District shall have authority to appoint two deputy coroners, who shall assist the coroner in the performance of his duties aforesaid, and shall perform the same duties in case of the absence or disability of the coroner. The deputy coroners shall serve and receive pay only in case of the absence or disability of the coroner, and when serving, their duties shall be the same as the aforesaid duties of the coroner. The deputy coroners shall, while acting, receive compensation at a rate not exceeding $5 per day, to be paid as other expenses of said District, and each shall give bond in the penalty of $2,500, with security to be approved by the Supreme Court, conditioned for the due performance of his duties.

**Child Labor.**—The twentieth anniversary conference on child labor was held in Washington, May 27-28, in the Hall of Nations, under the auspices of the National Child Labor Committee. Five sessions were held as follows: Child Labor —A National Problem; The Constitutional Amendment; Problems of State Administration; Why a Child Labor Amendment? and The Federal Government and Child Labor. Among the speakers were Samuel M. Lindsay, Ph.D., New York; Royal Meeker, Ph.D., Harrisburg, Pa.; Felix Adler, Ph.D., New York, and Samuel Gompers, president of the American Federation of Labor.

## FLORIDA

**Hospital Name Changed.**—The Miami City Hospital, Miami, will in future be officially known as the James M. Jackson Memorial Hospital.

**Chiropractor Fined.**—According to reports, J. G. Avery, a chiropractor of Baldwin, was fined $100 on three counts, May 5, when he was found guilty of practicing medicine without a license.

## IDAHO

**Society News.**—At the annual meeting of the Idaho Falls Medical Society, May 2, Dr. Entelles A. Cantonwine was elected president; Dr. Harry L. Willson, vice president, and Drs. Jabez W. West, Jr., Harry D. Spencer and Arthur R. Soderquist were named as delegates to the state medical convention to be held in Boise, June 20-21.

## ILLINOIS

**Society News.**—The next annual meeting of the Illinois State Medical Society, the seventy-fifth, will be held in Quincy and not in Springfield as previously stated.——The Illinois Tuberculosis Association will hold a postgraduate course in the latest methods of the diagnosis and treatment of tuberculosis in Quincy, June 2, under the auspices of the school of instruction in tuberculosis of the association. Drs. James W. Pettit and Roswell T. Pettit, of Ottawa; Dr. George T. Palmer, Springfield, and Dr. James S. Pritchard, Battle Creek, Mich., will give the courses.——At the annual meeting of the state association, Dr. Harold Swanberg, secretary of the Adams County Medical Society, was elected vice president of the secretaries' conference.——Dr. Ray Lyman Wilbur, President of the American Medical Association, addressed the Champaign County Medical Society, May 27, on "Progress in Medicine."

### Chicago

**Chicago Tuberculosis Society.**—At the annual meeting of the Chicago Tuberculosis Society, May 15, Dr. Nathaniel A. Graves was elected president for the ensuing year; Dr. Robert H. Hayes, vice president, and Dr. Samuel A. Levinson, secretary. The next meeting will be held in October.

**Personal.**—Dr. John A. Hornsby, for several years superintendent of the Michael Reese Hospital, Chicago, has been appointed superintendent of the University of Virginia Hospital, Charlottesville.——Dr. Florence B. Seibert has for the second time been appointed a research fellow of the William T. Porter Fellowship for physiologic research administered under the auspices of the American Physiological Society. She will pursue her research work in the laboratories of Dr. Harry Gideon Wells, at the University of Chicago.——Dr. Norman Bridge, formerly of Chicago, and donor of the Norman Bridge Laboratory, has subscribed $150,000 to the Southwest Museum of Art, Los Angeles.——Dr. Arthur I. Kendall, professor of bacteriology and dean of Northwestern University Medical School, has been appointed professor of bacteriology and hygiene at Washington University School of Medicine, St. Louis.——Dr. Ralph B. Cobb has been appointed superintendent of the Iroquois Memorial Hospital, Chicago.

## IOWA

**Personal.**—Dr. Granville N. Ryan, Des Moines, has been elected a member of the board of executives of the American College of Physicians.——Dr. Jane D. M. Wright, Clear Lake, was elected president of the Society of Iowa Medical Women, at the annual meeting in Des Moines, May 6.

**Physician Fined.**—According to reports, Dr. John Hamilton, Cedar Rapids, was fined $100 in the federal court at

Dubuque, recently, when he was found guilty of violating the Volstead Act. It was stated by his attorney that Dr. Hamilton was using whisky only as a stimulant to sustain the life of an old resident of the city.

**Alumni Reunion.**—The thirteenth clinic of the State University of Iowa College of Medicine was recently held in Iowa City, when old students and graduates, as well as physicians from other cities, attended. Walter A. Jessup, Ph.D., president of the university, delivered the address of welcome, and Dr. Alfred N. Richards, professor of pharmacology, University of Pennsylvania, Philadelphia, spoke on "Some Recent Experiments on the Function of the Kidney."

## KENTUCKY

**Health Week.**—Kentucky celebrated its first Health Week, May 11-17. Sermons on health were given in all the churches, May 11; Monday was health conservation day; Tuesday, public premises clean-up day; Wednesday, fly prevention day; Thursday, children's day, and Friday, milk and food day.

**Rural Clinic.**—A party of twenty-five, including Dr. Charles H. Mayo of Rochester, Minn., and Dr. Arthur T. McCormack, secretary of the state board of health, recently gave a free clinic at the Stuart Robinson School, Blackley. Nearly 500 residents of the surrounding mountainous district attended the clinic.

**Society News.**—Dr. William T. Little, Calvert City, was elected president of the Southwestern Kentucky Medical Association at Paducah, May 13, to succeed Dr. Herbert H. Hunt, Mayfield. Dr. Claude E. Kidd, Paducah, and Dr. H. Rufus Boitnott, Dawson Springs, were elected vice presidents; Dr. James T. Reddick, Paducah, treasurer, and Dr. James Vernon Pace, Paducah, secretary.

**Chiropractors Get Injunction to Stay Examinations.**—A temporary restraining order preventing the state board of health from holding an examination, scheduled for May 12-13 at Louisville, was issued, May 12, by Circuit Clerk Arthur following application filed by the Kentucky Association of Chiropractors. The petition alleges that the first examination, held under the 1920 state law, was unfair to the chiropractors, and that the questions asked were so rigid that it was impossible for chiropractors to pass the examination.

## LOUISIANA

**University News.**—In the report of the president of Tulane University of Louisiana School of Medicine, New Orleans, for the session 1922-1923, it was stated that the assets of the university have been increased considerably through bequests and donations. The Carnegie Corporation donated $837,500 for the school of medicine and $41,875 for current expenses, and the General Education Board, $35,625. The sum of $77,909 was received in student fees; $38,454 from endowment, and $77,500 in gifts. The total assets of the school of medicine were stated at $1,197,215.

## MASSACHUSETTS

**Personal.**—Dr. Karl R. Bailey, bacteriologist of the health department, will succeed the late Dr. Philip Castleman as deputy health commissioner of Boston.

**New England Health School.**—More than 1,200 people attended the New England Health Institute held in Boston, recently, under the leadership of Dr. Eugene R. Kelley, state health commissioner. Eighty-five lectures were given. The sponsors for the school included the state departments of health of all New England states; the schools of public health of Harvard and Yale; the departments of biology and public health of Simmons College and Massachusetts Institute of Technology and the federal public health service. At the annual business meeting, May 15, it was decided to hold the next session in Maine, and Dr. Clarence F. Kendall, health commissioner of Maine, was elected director of the 1925 session.

**Licenses Revoked.**—The Massachusetts Board of Registration in Medicine, May 2, revoked the license to practice of Dr. Daniel W. Dorman on complaint alleging violation of the Harrison Narcotic Law.——The same day, the certificate of registration of Dr. John Therrien was suspended for one year. Dr. Therrien testified that he had introduced a sound, and later an irrigating tube, into the uterus of a young woman for the purpose of relieving dysmenorrhea. The patient developed peritonitis, and a subsequent operation by a surgeon revealed a puncture of the uterus. The patient died. The board stated that the methods employed by Dr. Therrien seem to indicate lack of adequate judgment and skill.——March 27, the board revoked the license of Dr. Joseph Arthur Chausse, New Bedford, on the ground of fraud in connection with the practice of medicine.——The board also revoked the license of Dr. Horace G. MacKerrow, Worcester, February 13, according to reports, on a charge of rape.

**Society News.**—The one hundred and forty-third annual meeting of the Massachusetts Medical Society will be held in Swampscott, June 6-7, with Dr. Enos H. Bigelow, Framingham Center, presiding. The Shattuck lecture will be delivered by Dr. Charles Macfie Campbell, director of the Boston Psychopathic Hospital, on "Psychiatry and the Practice of Medicine," and Dr. Lloyd D. Felton, of Harvard Medical School, will speak on "Concentrated Antipneumococcus Solution."——At the annual meeting of the Massachusetts Society of Examining Physicians in Boston recently, Dr. Charles S. Benson, Haverhill, was elected president; Drs. Hilbert F. Day, Timothy Leary and Cadis Phipps, vice presidents, and Dr. William P. Coues, Brookline, secretary.——At the annual meeting of the Middlesex North Medical Society at Lowell, Dr. Archibald R. Gardner was elected president, and Dr. Theodore A. Stamas, secretary.——A public meeting was held in Boston, April 25, under the auspices of the state medical society, the subject being "The Control of Diphtheria by the Use of the Schick Test and Toxin-Antitoxin." Dr. James S. Stone, of the committee of public instruction, presided, and introduced the speakers who were Drs. Hans Zinsser, Benjamin White, Edwin H. Place and John A. Ceconi.——At the annual meeting of the Massachusetts Tuberculosis League, Dr. Edward O. Otis was elected president, and Dr. Kendall Emerson was elected vice president.——At the eighty-third annual meeting of the Essex North District Medical Society in Lawrence, May 14, the following officers were elected for the ensuing year: president, Dr. Joseph A. Bedard, Lynn; vice president, Dr. Edwin D. Towle, Salem; treasurer, Dr. Andrew Nichols 3rd, Danvers, and secretary, to succeed Dr. Forrest Burnham, Lawrence, Dr. R. E. Stone, Beverly.

## MICHIGAN

**Personal.**—Dr. Harry C. Irvin has been appointed health officer of Holland to succeed the late Dr. Byron B. Godfrey.——Dr. Arnold L. Gesell, professor of child hygiene, Yale University School of Medicine, New Haven, Conn., gave a lecture illustrated with moving pictures, on "Mental Hygiene of Early Childhood," in the Lincoln School Auditorium, Kalamazoo, May 13.——Dr. A. G. Cowles has been reappointed health officer of Vernon.——Dr. Thomas E. DeGurse has been appointed health officer of Marine City.——Dr. Charles N. Sowers, Benton Harbor, has been elected chief of staff of Mercy Hospital to succeed the Dr. Henry V. Tutton.——Dr. Henry A. Shurtleff has been reappointed health officer of Marshall.

## MISSISSIPPI

**Personal.**—Dr. Henry S. Gully, Meridian, has been elected superintendent of the Mattie Hersee Hospital to succeed Dr. H. Samuel Hairston.——Dr. Charles M. Roberts, Tupelo, has tendered his resignation as health officer of Lee County. He will go to Honduras, Central America.——Dr. Felix Joel Underwood, Jackson, has been appointed executive secretary of the state board of health to succeed Dr. Waller S. Leathers, who resigned, recently, to join the faculty of Vanderbilt University Medical Department, Nashville, Tenn.

## MISSOURI

**Hospital News.**—On April 28, the roentgen-ray and radium laboratories of the St. Louis City Hospital were opened to private inspection, and put in operation, April 30. The quantity of radium owned by the city is 545 milligrams. The building is especially adapted to the use of the roentgen ray and the application of radium, contains special facilities for the treatment of fractures, and a special operating room for the removal of foreign bodies and the application of deep therapy in the treatment of cancer. Dr. LeRoy Sante is head of the department.

## NEW HAMPSHIRE

**Hillsborough County Elects.**—At the annual meeting of the Hillsborough County Medical Society in Nashua, May 12, Dr. Nathaniel F. Cheever, Greenfield, was elected president; Dr. Sam S. Dearborn, Nashua, vice president, and Dr. Deering G. Smith, Nashua, secretary-treasurer.

## NEW JERSEY

**Chiropractor Jailed.**—According to reports, John H. Conover, Union Hill, was fined $500 by Judge Carrick in Jersey City, April 29, on a charge of practicing medicine without a license. Refusing to pay, Conover will have to serve fifty days in the county jail.

## NEW YORK

**Periodic Health Examinations.**—At a recent meeting of the New York County Medical Society a resolution was passed that the society immediately take steps, through an appropriate committee, to formulate a feasible and workable plan to promote periodic health examinations through the agency of the general practitioner.

**Water Supply System for Albany.**—Plans for extensive improvements to Albany's water supply system, or the establishment of a new system to cost $1,000,000, are being developed as the result of the typhoid fever epidemic through which the city recently passed. Pollution of the water supply resulted in fifty-two cases of typhoid fever in one week.

**Hospital Appropriations.**—The state board of estimate and control has apportioned $12,402,500 for the construction of new buildings at state hospitals to relieve overcrowding and eliminate fire-traps. This sum represents the first year's proceeds of the $50,000,000 bond issue approved by the voters at the last election. The money is apportioned as follows:

Kings Park State Hospital, Kings Park, L. I., $1,930,000 to complete the special group of buildings for ex-service men suffering from mental disorders.

Brooklyn State Hospital, Creedmoor, L. I., $3,500,000, for completion.

Harlem Valley State Hospital, Dutchess County, $2,570,000 to convert the Wingdale prison into the above mentioned hospital.

Manhattan State Hospital, Wards Island, $60,000 to repair parts destroyed by fire.

Matteawan State Hospital for Criminal Insane, $1,000,000 for enlargement.

Letchworth Village for Feebleminded, Thiells, $1,812,500 for enlargement.

State Hospital for Crippled Children, West Haverstraw, $295,000 for enlargement.

The balance of the funds will be expended on enlarging the Rome State School for Mental Defectives and the Craig Colony for Epileptics, Sonyea.

### New York City

**Academy of Medicine Building Plans.**—Building plans drawn by York and Sawyer, architects for the new Academy of Medicine to be erected on the recently acquired site at One Hundred and Third Street and Fifth Avenue, provide for a fourteen story building to cost $750,000.

**A Christian Science Healer Treats Diphtheria.**—After a necropsy on the body of Mrs. Lena Jacobson, who died while under the care of a Christian science healer, Chief Medical Examiner Charles Norris reported that the woman had died of diphtheria and that in all probability the timely administration of antitoxin would have saved her life. The case has been referred to the police department for investigation.

**City Hospitals to Use Chlorin Gas.**—Health Commissioner Dr. Frank J. Monaghan announces that the health department has decided to experiment with the use of chlorin gas in the treatment of colds, bronchitis and other respiratory affections. The first experiments, according to the present plans, will be made in Willard Parker Hospitals, and if these are successful this method of treatment will be introduced in other contagious disease hospitals of the health department.

**Memorial in Honor of Dr. George MacNaughton.**—At the monthly meeting of the Medical Society of the County of Kings, May 21, a bronze tablet of Dr. George MacNaughton, who was president of the society in 1891, was presented by his nephew, Frederick L. Cranford. The memorial was accepted in behalf of the society by Dr. Frank E. West, who was president of the organization succeeding Dr. MacNaughton. The address of the evening was made by Dr. Ray Lyman Wilbur, President of the American Medical Association, who spoke on "Medical Education." Dr. Lewis S. Pilcher also made a brief address on "Medical History in Medical Education."

**Chiropractor Gets Jail Term.**—Convicted of practicing medicine illegally, James V. Sicca, of 1327 Bushwick Avenue, Brooklyn, has been sentenced to thirty days in the Raymond Street jail by Justices Nolan, Voorhees and Hermann in the Court of Special Sessions. The defendant admitted that he was not even a graduate of a grammar school, and that his sole qualifications were a two-year course in a chiropractic school. Manhattan detectives on May 22 raided the Central Health Institute, at 40 West Fifty-Seventh Street, and arrested Hedley V. Carter, the proprietor of the institute, and his assistant. They were held in $500 bail in the West Side Court charged with illegally practicing medicine.

**Hospital News.**—The directors of Montefiore Hospital have given $450,000 as the nucleus of a fund for new buildings at the Country Sanatorium at Bedford Hills.——The municipal hospitals now have 200 beds for cancer cases, but provision is being made for 250 extra beds for such cases.——The new $500,000 hospital in the Bronx, at the corner of Lafayette Avenue and Manida Street, was dedicated, May 11. The superintendent of the institution will be Dr. S. B. Hirschberg, who has been superintendent of the General Hospital, Kansas City, Mount Zion Hospital, San Francisco, and Beth Moses Hospital, Brooklyn. The chief resident physician is Dr. David Miller.——The Jewish Home for Convalescents, Brooklyn, was opened, May 3. At the dedicatory exercises the key to the institution was sold for $1,500 to Mrs. Nathan S. Jones; the next highest bidder, who offered $1,400 for the key, donated that amount to the future building fund. The home will care for destitute patients for two weeks after their removal from hospitals.——The erection of a new $2,000,000 structure to house Lebanon Hospital will commence in a few months, according to a recent announcement made by the superintendent of that institution. The new building will be located on the Grand Concourse and will command a view of the Harlem River. The structure will be ten stories high and will accommodate 300 patients. There will be separate buildings for the training school and the dispensary. Dr. Gustav Seeligmann is president of the medical board.——The Norwegian Hospital celebrated its twenty-fifth anniversary, May 14. Drs. Beeckman J. Delatour and Edward D. Ferris were the guests of honor at the banquet.——A movement has been started to reopen the Williamsburg Hospital, Brooklyn, which closed in 1922 because it could not meet the annual deficit. Physicians present declared that the hospital was badly needed in that section of Brooklyn. Among the new directors elected are Dr. Theodore L. Vosselor, Dr. Richard A. Henderson and Dr. Robert J. Morrison.——The state board of charities, satisfied of the great need of this city for a hospital devoted exclusively to the care and treatment of persons suffering from incipient mental and nervous diseases, has approved the charter of the Neurological Hospital. The Neurological Hospital will be a strictly philanthropic institution, serving as a preventorium for mental diseases. Patients will be examined on the group diagnosis plan. Attendance will be entirely voluntary, in contradistinction from the asylums where the sufferer is conducted and retained by force, thus saving him from mortification of practical imprisonment previous to a thorough examination. The board of directors has pledged $250,000 to establish this institution for those who cannot afford to go to a private sanatorium.

## OHIO

**State Medical Meeting.**—Officers elected at the annual meeting of the Ohio State Medical Association in Cleveland, May 13-15, for the ensuing year are as follows: president, Dr. George E. Follansbee, Cleveland; president-elect, Dr. Clarence D. Selby, Toledo, and executive secretary, Don K. Martin, Columbus (reelected). The next meeting will be held in Columbus in May, 1925.

## OKLAHOMA

**Personal.**—Dr. Lucile S. Blachly, Drumright, has been named director of the bureau of child hygiene.

**State Medical Meeting.**—At the thirty-second annual meeting of the Oklahoma State Medical Association in Oklahoma City, May 13-15, the following officers were elected for 1924-1925: president, Dr. Everett S. Lain, Oklahoma City; president-elect, Dr. Pleasant P. Nesbitt, Muskogee; vice presidents, Drs. George S. Baxter, Shawnee, Walter H. Livermore, Chickasha, and Joseph S. Fulton, Otoka, and secretary-treasurer and editor, Dr. Claude A. Thompson (reelected). Tulsa was selected as the next meeting place. Legislation was urged for the establishment of a permanent state medical commission. A letter from the American Medical Association suggesting that other states had "cleaned house—why not Oklahoma?" was read, and it was stated that the state board of medical examiners had been guilty of leniency in giving licenses, in that it gave reciprocity to impostors whom other states had turned down. The state board of medical examiners, for some time, has been attempting to round up the graduates of the diploma mills practicing in Oklahoma. A member of the board stated that although it did everything

possible to keep out illegal practitioners, the board was handicapped because any district court could set aside its rulings, and quoted two recent cases in which licenses had been revoked and the men were still practicing.

## PENNSYLVANIA

**Personal.**—Dr. Joseph H. Barach, Pittsburgh, addressed the medical section of the College of Physicians of Philadelphia, April 28, on "Arterial Hypotension."——Dr. Joseph C. Doane, superintendent of the Philadelphia General Hospital, Philadelphia, was recently elected president of the Hospital Association of Pennsylvania.

**Cultists Compelled to Take Antitoxin.**—Having forcibly administered toxin-antitoxin to members of Faith Tabernacle, Lebanon, local health authorities are hopeful of checking the spread of diphtheria, which during the past three weeks has caused the death of nine children (THE JOURNAL, May 17, p. 1618). Five deaths occurred in one family. Among others, toxin-antitoxin was administered to the family of the pastor of the tabernacle, whose youngest son has diphtheria.

**Mental Health Work.**—A community service department was organized in August, 1921, for the purpose of establishing mental health clinics in various cities of the state. Since that time, clinics have been opened in Wilkes-Barre, Sunbury, Berwick, Hazelton, Lock Haven, Williamsport and Danville. In the last seven months, 1,032 patients have been seen and advised. Lectures, on the cause and prevention of mental diseases, to students of the universities and normal schools, are concluded by a clinic at a hospital where various types of mental disease are demonstrated by cases, and methods of treatment are explained in the wards of the hospital.

### Philadelphia

**Public Health Day.**—Philadelphia celebrated its eighth annual public health day, April 30. The principal feature of the exercises was a mass meeting in the Academy of Natural Sciences which was addressed by Dr. Wilmer Krusen, director of health; Col. John D. McLean, Dr. Alexander C. Abbott and James M. Anders. Dr. James H. McKee broadcasted a talk on child hygiene earlier in the evening.

**Joint Meeting of Psychiatric and Pediatric Societies.**—The combined meeting of the Philadelphia Psychiatric and the Philadelphia Pediatric Societies was held in Thompson Hall, College of Physicians, May 13, and the subject of the program, prepared by the mental hygiene division of the Public Charities Association was "Mental Hygiene in Childhood." Dr. Bernard Glueck of New York City spoke on "The Place of Psychiatry in a Child Guidance Clinic." Papers were read also by Drs. Franklin G. Ebaugh, Charles W. Burr and Emily P. Bacon.

## SOUTH CAROLINA

**Tri-County Medical Society Organized.**—A reorganization meeting of the Little Pee Dee Medical Society was held in Marion, May 8. The society was formed two years ago, but did not function owing to the fact that the society could not operate as a single county unit. It has now organized as a tri-county society with Marion, Horry and Dillon counties included. Dr. Dove W. Green, Mullins, is secretary of the organization.

## TENNESSEE

**Hospital News.**—A contagious disease hospital building will be erected at Baroness Erlanger Hospital, Chattanooga, in the rear of the present institution and entirely separate from the main building. Since the former pest house was destroyed by fire several years ago, there has been no special provision made for contagious diseases in the city.

## VIRGINIA

**Personal.**—Dr. Joseph N. Barney, Jr., Fredericksburg, major, M. O. R. C., has been selected by the War Department as one of seven reserve officers in the United States to report for duty at Mitchell Field, L. I., for a special course of instruction as advanced flight surgeon in the air service. In the army correspondence course examination of officers, Dr. Barney received the highest grade in the eighteenth division area.——Dr. Joseph Grice, Portsmouth, has been appointed medical inspector of schools, succeeding the late Dr. E. Alexander Hatton.

**Walter Reed Medical Society.**—Officers elected at the annual meeting of this society in Newport News, May 14-15, for the ensuing year are as follows: president, Dr. George W. Brown, Williamsburg; vice presidents, Drs. George E. W. McAllister, Hampton, Morris B. Beecroft, Newport News, Leslie C. Brock, Smithfield, Cornelius B. Courtney, Newport News, and John J. Cullinan, Hampton; secretary, Dr. Landon E. Stubbs, and treasurer, Dr. James E. Marable. A ways and means committee was appointed to consider the acquisition and perpetuation of Belroi, the former home of Walter Reed, as a memorial. The present owner will sell the house with one acre of land for $1,000, it was announced.

## WISCONSIN

**Course for State Board Physicians.**—An intensive course in medical instruction, open to physicians on the staffs of all institutions under the state board of control, was given at the Wisconsin Psychiatric Institute, Madison, May 19-24, with the cooperation of the University of Wisconsin Medical School. Dr. Paul C. Hodges, professor of roentgenology, Peking Union Medical College, China, who is on leave of absence, spoke on "Early Diagnosis of Tuberculosis"; other lecturers were Dr. William F. Lorenz, professor of nervous and mental disease, University of Wisconsin; W. J. Meek, Ph.D., professor of physiology; Dr. W. S. Middleton, professor of clinical medicine, and Dr. Morton K. Green, superintendent of the Wisconsin State Hospital.

## WYOMING

**Mental Health Survey.**—Under the auspices of the National Committee for Mental Hygiene, a survey was recently made in the public schools of Wyoming. Of the 3,885 public school children included in this study, 94 per cent. were native born, but more than one fourth of the parents were foreign born. In comparing their mental age with their actual age, it was found that 11 per cent. were retarded more than two years, and 33 per cent. were retarded one or two years. At the state industrial institute there were seventy-five boys from 11 to 25 years of age, and of these fifty presented psychiatric problems. Forty-one had psychopathic personalities; four were borderline defectives; three were mental defectives; one had a psychoneurosis, and one endocrine imbalance.

## PHILIPPINE ISLANDS

**Public Health News.**—The health officer's report states there was in 1923 a general death rate of 9.8 per thousand population reported in the prisons; fifty prisoners died of tuberculosis, which disease had the highest mortality; more than 5,000 prisoners were admitted to hospitals for treatment. ——The district health officer of Iloilo reports an annual death rate of 19.2 for 1923 as compared with 27.9 for the last five years.——Malaria campaigns are being conducted in various provinces in charge of a sanitary engineer from the Rockefeller Foundation.——The general death rate for Ilocos Sur is reported as 15.6 as compared with an average rate of 23.8 for the last five years and an infant mortality rate of 128.3 as compared with 184.9 per thousand births in the last five years.——Surg. Bienvenido Caro recently returned from Leyte where he had conducted a hookworm campaign in Tacloban, Borawen, Dulag, Tanawan, Carigara and Ormoc. More than 90 per cent. of the population were found to be infected.

## CANADA

**Rockefeller Gift to Alberta.**—The sum of $500,000 has been given to the University of Alberta Faculty of Medicine, Edmonton, Alta., by the Rockefeller Foundation of New York City. Another donation has been given for the extension of work on the use of insulin.

**Society News.**—The Ontario Health Officers' Association, at present in convention at Toronto, Ontario, recently elected the following officers for the coming year: president, C. N. Laurie, M.D., Port Arthur, Ont.; first vice president, Dr. F. Adams, M.O.H., Windsor, Ont.; second vice president, T. W. McKay, M.D., Oshawa, Ont.; secretary, Dr. J. J. Middleton, Toronto, Ont.——The Women's Medical Alumnae of the University of Toronto recently tendered their annual dinner to the ladies of the medical graduating class; thirty-five local women physicians and seventeen graduates were present. Dr. Augusta Stowee-Gullen, who attended the banquet, was the first woman physician to obtain her degree in Toronto thirty-four years ago. The president, Dr. Jennie Smillie of Toronto was the chief speaker at the banquet.

**Hospital News.**—To study the methods and results at the Sick Children's Hospital, Toronto, Canada, a number of physicians from the United States, Great Britain and Canada will meet in Toronto, June 13 and 14, 1924. They will make

their headquarters at the hospital and will spend their time interviewing cases and presenting papers. A special feature will be a study of the Lakeside Home, Centre Island, Toronto, which is operated in the summer months by the Sick Children's Hospital.——On receipt of a formal notice from the City Hall, Toronto, the officials of the Toronto (Ontario) General Hospital are prepared to refuse admittance to patients of the Ontario Workmen's Compensation Board unless the board is willing to pay full costs of the service. This action follows a decision of the city council to advise all hospitals that the city will not be responsible for deficits occurred through these patients.

## GENERAL

**Renewal of Narcotic Registration.**—Registration under the Harrison Narcotic Act expires June 30. Prompt renewal will save registrants from annoyance and payment of penalties. Physicians planning to attend the Chicago Session may find it desirable to renew their registration before they leave home.

**Solicitor for Funds for German Physicians Not Authorized.**—Dr. S. Adolphus Knopf writes that he has received a statement from the consul-general of Austria, and also directly from Vienna, indicating that one Dr. Loeffler, who, it is stated, has been soliciting funds for the Verein deutscher Aerzte in Austria, is not authorized by that organization.

**Appeal for Hospital Beds in London.**—An appeal is being made to Americans for the endowment in the Washington ward of the Royal Free Hospital, London, of two beds, one in memory of Dr. Elizabeth Blackwell, the first woman physician to graduate in America (University of Geneva, N. Y., 1849), and the other in memory of Martha Washington. Mrs. B. S. Oppenheimer, 124 East Sixty-First Street, New York City, is treasurer of the fund.

**Prize for Scientific Apparatus.**—The *Journal of the Optical Society and Review of Scientific Instruments* announces that the Association of Apparatus Makers of the United States will give a prize of $250 for the best paper on scientific instruments and methods presented between May 1 and December 31, for publication in the instrument section of the journal. This prize will be awarded by a committee to be appointed by the National Research Council.

**Review of Framingham Demonstration at British Exhibition.**—Dr. Ralph C. Matson, Portland, Ore., has been invited to present the story of the tuberculosis demonstration at Framingham, Mass., conducted for seven years by the National Tuberculosis Association, before the International Health Conference at Wembley Exhibition, England. Dr. Donald B. Armstrong, of the Metropolitan Life Insurance Company, New York, who was in charge of the demonstration, furnished the material for the monograph.

**One Bill of Health for Ships to Peru.**—The Public Health Service at Washington, D. C., is in receipt of information from Lima, Peru, to the effect that ships from the United States to Peru, passing through the Panama Canal, will be required to have only one bill of health for reception in Peruvian ports. The requirement heretofore has been that all such vessels must obtain a bill of health not only at Colon but also at Balboa. This has resulted in double expense on the part of ships and also inconvenience in requiring all ships destined to Peru to stop at Balboa. The order modifying the requirement was issued April 25, by President Medina of the Republic of Peru.

**Care of the Feebleminded.**—The federal census bureau has announced preliminary figures on the number of mentally diseased, feebleminded and epileptic persons in institutions in this country. The following summary taken from the official announcement includes 526 hospitals for mental disease, eighty-four psychopathic wards of general hospitals, 136 institutions for the feebleminded and thirty-two institutions for epileptics—a total of 778 institutions:

| Class of Institution— | Patients on Books Jan. 1 |
|---|---|
| Hospitals for mental disease | 279,559 |
| Psychopathic wards of general hospitals | 2,135 |
| Institutions for feebleminded | 43,636 |
| Institutions for epileptics | 8,823 |

**American Heart Association Organized.**—With Drs. Joseph Sailer and William D. Stroud, Philadelphia; Dr. Hugh McCulloch, St. Louis; Drs. Paul D. White, Henry Jackson and William H. Robey, Boston; Drs. Haven Emerson, Robert H. Halsey and Lewis A. Conner, New York City, and Drs. James B. Herrick, Robert B. Preble and Sidney Strauss, Chicago, as incorporators, the American Heart Association was approved, May 20, by Supreme Court Justice Giegerich of New York. The organization was effected by the National Committee for the Prevention and Relief of Heart Disease, organized several years ago to disseminate knowledge concerning functional derangement and maladies of the heart, to promote scientific treatment of cardiac patients, and to select employment suitable to patients suffering from heart disease.

**Fellowships of the National Research Council.**—The medical fellowship board of the National Research Council had its regular semiannual meeting, April 26, and continued the appointment of the following fellows, in some instances with a change of location of their work:

| Name and Place of Work— | Specialty |
|---|---|
| Albritton, Errett C., Ohio State University | Physiology |
| Andrus, E. C., University of Vienna | Physiology |
| Andrus, W. D., University of Cincinnati | Surgery |
| Anson, Barry J., Harvard | Anatomy |
| Cone, W. V., Columbia | Neuropathology |
| Kleitman, Nathaniel, University of Paris and University of Chicago | Physiology |
| Leonard, C. S., Yale | Pharmacology |
| McCordock, H. A., Johns Hopkins | Pathology |
| Newman, L. H., Harvard | Biochemistry |
| Sands, M. J., Cambridge | Physiology |
| Smith, Francis M., Johns Hopkins | Biochemistry |
| Smith, Homer W., Harvard | Physiology |

From a list of fifty-two candidates the following fourteen were appointed:

| Name and Place of Work— | Specialty |
|---|---|
| Britton, Sydney W., Harvard | Physiology |
| Chambers, W. H., Cornell | Physiology |
| Drabkin, David L., Yale | Biochemistry |
| Hughes, Thomas P., Harvard | Bacteriology |
| Isaacs, Moses L., Columbia | Biochemistry and Immunity |
| Katz, Louis N., University of London | Physiology |
| Kennedy, James A., Harvard | Bacteriology |
| Loebel, Robert O., Royal Institute, Berlin | Physiology |
| McKinley, Earl B., University of Brussels | Bacteriology |
| Miller, Aura J., Harvard | Pathology |
| Reed, Carlos I., University of Chicago | Physiology |
| Scriver, W. DeM., Harvard | Biochemistry |
| Shambaugh, Noel F., University of Michigan | Biochemistry |
| Woodall, Chas. S., Harvard | Biochemistry |

The following general action as to the administration of the fellowships was also taken: A limited number of appointments to work abroad will be made, selections to be made because of special qualifications and on the initiative of the board, not the candidate. Applicants may express a desire to work in a foreign country, but should also indicate with whom they would desire to work in this country if not accepted for work abroad.

**Public Health Summer Schools.**—The final announcement of the 1924 public health summer schools has been issued by the U. S. Public Health Service. These schools will be conducted by Columbia University from July 7 to August 15, the University of California from June 23 to August 2, the State University of Iowa from June 9 to July 18, and the University of Michigan from June 23 to August 1 and 15. The announcement includes also a list of public health courses offered by the summer sessions of about fifty-two other universities and colleges. In all, 233 separate courses in public health and allied subjects are offered by the four public health summer schools, and more than 300 courses by the summer sessions of the other universities and colleges. The National Health Council believes that this is an unusual opportunity for high grade, systematic study, and is assisting the Public Health Service in bringing these summer schools to the attention of sanitarians throughout the country. It is believed that the public health summer schools will afford a far more satisfactory opportunity for supplemental academic training than have any of the institutes conducted by the Public Health Service in the past or by other public health agencies, since they will provide from six to eight continuous weeks of study. Furthermore, the courses will cover a far wider range of subjects than are usually available at short term institutes. Laboratories will be available. Clinical material will be used for demonstrations, and other measures will be utilized to make the work highly practical. The aim of these summer schools is (1) to provide up-to-date intensive training for all persons engaged in any kind of public health work; (2) to furnish up-to-date instruction which will enable practicing physicians to deal effectively with the more important causes of mortality and disability, and (3) to bring together physicians, health officers and other sanitarians, and thus establish better cooperation in disease prevention. Every physician who has already entered or is planning to enter some phase of public health work in connection with his private practice or with some health agency will be able, at most any one of the public health summer schools, to find the type of training he needs to enable him to develop greater efficiency in his new work. Most of the courses given by the University of California and the Univer-

sity of Michigan may be counted toward an advanced degree. Nearly all the courses offered by Columbia University and the State University of Iowa are regularly scheduled for credit; those not specifically so indicated may be taken for credit by arrangement with the appropriate department or the dean of the college concerned. During the next decade, thousands of men and women will enter various kinds of public health work, the announcement states. A few will come from schools of public health with some special public health degree. A much larger number, probably, will enter public health work directly from private medical practice, from private nursing, and from other occupations allied to public health work. The public health summer school has been established for such persons, and for those who have already entered the field of public health without having had the opportunity of special academic training. Those of either group may select at a conveniently located summer school two or more courses which will prove of immediate value in public health work or in any form of preventive medicine, irrespective of the academic credit gained. The Public Health Service and the four universities conducting the public health summer schools have received thousands of inquiries, and a large attendance is expected.

## FOREIGN

**Rockefeller Gift to Danish Savant.**—The Rockefeller Institute has presented Prof. August Krogh with the means of building a physiologic laboratory for research work at Copenhagen. Dr. Krogh was a Danish Nobel prize winner.

**Australian Journal.**—The first number of the *Australian Journal of Experimental Biology and Medical Science* was issued, March 15. It will be published quarterly. J. B. Cleland, professor of pathology at the University of Adelaide, and T. Brailsford Robertson, of the Laboratory of Physiology and Biochemistry, Adelaide, are the editors.

**Air Service Ambulance.**—The British air service has built a new ambulance plane with a cruising speed of 80 miles an hour and free from any form of vibration. Painted white with the ordinary red cross on its side, it has a cabin 10 feet 6 inches long and 5 feet 9 inches wide. Two stretcher cases and four sitting cases, with nurses and physicians, can be accommodated.

**Insurance of Schoolchildren.**—Switzerland, it is stated, is the first country to inaugurate government insurance of school children. In some cantons it is voluntary, and in some compulsory. The premiums are paid jointly by the children and the government. The canton of Vaud was the first to insure its children.——A bill for the insurance of school children against sickness has been introduced into the Portuguese senate.

**Exhibition of Physicians' Painting.**—An exhibition of painting, the work of physicians, was given at the Royal Society of Medicine, London, May 26-June 14, under the auspices of Sir William Hale-White, president of the society. Sydney Lockyer, the artist, selected the works. The fourth "Salon des médecins" was recently held in Paris. It is stated that many of the works of both the English and the French physicians are of high artistic merit.

**Society News.**—A meeting of the International Union of Pure and Applied Chemistry will be held in Copenhagen, June 26-July 1. The American delegation includes W. D. Bancroft, chairman, J. E. Zanetti, secretary, W. A. Noyes, W. T. Taggart, E. J. Atkisson, F. E. Breithut, H. C. Fuller, H. C. Loudenbeck, R. A. Millikan and Atherton Seidell.—— At the annual meeting of the Tasmanian Branch of the British Medical Association at Hobart, February 20, the following officers were elected: president, to succeed Dr. Gregory Sprott, Dr. G. E. Clemons; president-elect, Dr. J. Ramsay; vice president, Dr. D. H. Lines, and secretary, Dr. E. Brettingham-Moore.——The council of the Irish Medical Association has nominated for reelection as president and vice president of the association, respectively, the present officers, Senator W. O'Sullivan of Killarney and Dr. R. C. Purser of Dublin.——It is proposed to establish an international society open to all medical officers of health taking part in the various interchanges organized by the League of Nations. A provisional committee composed of representatives from Great Britain, Russia, France, Germany, Poland, Italy and Ecuador has been organized to draw up the constitution. The society will have headquarters at Geneva. All public health officers who have already taken part in the league interchanges—who number 240 from forty-three different countries—will be invited to become original members.

### Deaths in Other Countries

Dr. **Richard Jones,** a genito-urinary specialist of Australia; author of "Smallpox and Vaccination"; formerly medical inspector of lepers on Culion Island, P. I.; in Victoria, aged 63.——Dr. **Thomas Borthwick,** for twenty-four years city health officer of Adelaide, Australia, and lecturer in bacteriology and hygiene at the University of Adelaide, aged 64.——Dr. **Richard J. Reece,** senior medical officer of the ministry of health of Great Britain.——Dr. **Richard H. Fox,** noted for his works on historical medicine, aged 71, at his home in England. His five brothers and his father and grandfather were physicians.——Dr. **G. H. Oliver,** former lecturer in ophthalmology at the University of Oxford, aged 63.——Major **F. W. Cragg,** British Indian Medical Service, of typhus fever contracted while conducting researches into the epidemiology and prevention of this disease in Lahore.

## CORRECTIONS

**Death of Dr. Chester Irving Fisher.**—In the obituary notice of Dr. Chester Irving Fisher, THE JOURNAL, May 17, the cause of death was stated as senility. The diagnosis made by the attending physician was angina pectoris and coronary sclerosis.

**Secretary of County Society.**—Dr. Myers W. Horner, Mount Pleasant, was elected secretary-treasurer of the Westmoreland County Medical Society (Pa.) at the annual meeting, May 15, not Dr. Carroll B. Rugh, as previously announced (THE JOURNAL, May 17, p. 1618).

**Treatment of Acne Vulgaris.**—The composition of the lotion used by Scott as given in his paper published in the *British Medical Journal*, January 26, was given incorrectly in THE JOURNAL, March 15, p. 924. The doses of the various ingredients of this lotion are: precipitated sulphur, from 8 to 20 gm.; zinc oxid, 8 gm.; powdered camphor, 1.33 gm.; tragacanth, 2 gm., and lime water, 240 gm.

# *Government Services*

### Hospitals Authorized

Pursuant to instructions of the Secretary of War, the organization of the following hospitals, organized reserves, has been authorized: Surgical Hospital, No. 43 (Milwaukee County Hospital Unit, Wauwatosa, Wis.); evacuation hospitals, No. 26 (St. Vincent's Hospital Unit, New York), and No. 39 (Knoxville General Hospital Unit, Knoxville, Tenn.).

### Government Hospital News

Orders for the removal, by June 1, of all patients now at U. S. Veterans' Hospital No. 26, Camp Sevier, near Greenville, S. C., have been received by the commander, Dr. Harrison M. Stewart. In accordance, thirty-seven patients will be transferred to Oteen, N. C., near Asheville; fifteen will be sent to Kerrville, Texas; ten will be transferred to Alexandria, La., and the few remaining will be sent to hospitals not yet announced. The hospital at Camp Sevier was established in 1919.

### Bill to Retire Nurses Reported Favorably

Army and navy nurses will be granted retirement exactly as officers of the army and navy, under the provisions of a bill favorably reported to the Senate by Senator Wadsworth of New York. In approving this measure the Committee on Military Affairs gives full recognition to the principle that army and navy nurses should be awarded longevity compensation on their retirement from the service and fixes the standards therefor on the same basis as that of regular officers of the army and navy. The grades authorized in fixing the annual rates of pay, place superintendents of nurses in the relative rank of majors in the army; assistant superintendents, directors and assistant directors, with the same relative rank as captain; chief nurses as that of first lieutenants, and nurses as second lieutenants. In approving the bill, Secretary of War Weeks, stated that: "The Army Nurse Corps has reached a stage of splendid efficiency. The individual members of this corps are highly capable and are daily performing very important and arduous work for the army. I believe it just and proper, and in accordance with the spirit of the times, to accord these nurses retirement for length of service."

# Foreign Letters

## LONDON

*(From Our Regular Correspondent)*

May 5, 1924.

### Standards of Vision for Scholars and Teachers

A memorandum has been issued by the Council of British Ophthalmologists on the standards of vision for candidates for scholarships and teacherships. The council holds that these should not be granted to candidates suffering from such ocular defects as may be aggravated by long-continued study and lead to inefficiency or incapacity later in life. It therefore endeavors to lay down standards of vision that shall exclude the unsuitable. The average age of entry on a junior scholarship is 11 years; the holder is transferred to a secondary school for five years. Supplementary scholarships are awarded at about 13 years of age, and are held for three or four years at a secondary school. Intermediate scholarships are granted at about 16, for two or three years. Senior county scholarships are granted at 18, and are tenable at a university for three or four years. Between the ages of 17 and 20, prospective teachers undergo training at a college. The errors of refraction considered of most importance in reference to education are myopia and high astigmatism. Myopia is found in about 10 per cent. of children at the leaving age in elementary schools; and, in about 10 per cent. of those with myopia, it becomes a serious defect; in the remaining 90 per cent. the defect causes little inconvenience apart from the necessity for wearing glasses. It is generally agreed that, in many persons, prolonged near work on fine objects under comparatively poor lighting is a cause of myopia, or aggravates existing myopia, especially when astigmatism is present. For prevention it is necessary to determine, at as early an age as possible, the unfavorable cases. In elementary schools, cases of myopia of considerable degrees are found in children under 7, but the first routine test of vision is not made until about 8. Some with diminished visual acuity and considerable myopia are transferred to special classes; others are ordered glasses and return to school. A child of 11 with 4.5 diopters of myopia is deemed unfit for a scholarship. He must continue at the ordinary school or, exceptionally, go to a class for the myopic. A child of this age with 1.5 diopters of myopia would be deemed fit for a scholarship. Between the limits of 4.5 and 1.5 diopters there are many difficult cases. Many young people with myopia have good visual acuity with correcting glasses, and apparently healthy fundi, yet their defect is often progressive. The determination of the rate of progression is important.

The following recommendations are made: 1. In all candidates for scholarships and teacherships, the visual acuity, with correcting glasses, should be not less than 6/9 in the better eye. 2. A child of 11 with less than 2 diopters of myopia in either eye should be passed. A child of 11 with more than 2 or less than 3, on probation, should be reexamined every six months. A child of 11 with 3 or more diopters of myopia in the better eye should be rejected for scholarship training. At the age of 15, those with more than 4 diopters of myopia in the better eye should be deemed unfit to train for the teaching profession. Entrants to training colleges, who are, as a rule, about 18 years of age, with more than 5 diopters of myopia in the better eye should be rejected. 3. Simple myopic astigmatism exceeding 3 diopters in the better eye should be a cause of rejection both for scholarships and for training as teachers. In compound myopic astigmatisms, unless the myopia is stationary, astigmatism of even 2 diopters may be a cause for rejection. Persons with hypermetropic astigmatism should be rejected only if visual acuity, with correcting glasses, in the better eye is less than 6/9. 4. If there is only one eye, or if there is only one useful eye, the other being amblyopic from nonprogressive disease, which in no way affects, or is likely to affect, the good eye, the case should be judged on the condition of the good eye. In the case of candidates for university and technical senior scholarships, or those intending to specialize as teachers of certain technical subjects, greater latitude may be allowed after consideration of special circumstances as to the nature of the work, and the condition of the candidate's eyes in other respects.

### The British Empire Cancer Campaign

At the Mansion House, the lord mayor presided over a meeting held in support of the British Empire Cancer Campaign. Speeches were made by the Duke of York, who is president of the grand council of the campaign, the minister of health, and others, pointing out the widespread nature of the scourge for which they hope to find a remedy. It was announced that $420,000 had been received, including an anonymous gift of $100,000. The organization enabled the money to be applied with a maximum efficiency under the best expert advice obtainable.

Sir John Bland-Sutton, president of the Royal College of Surgeons, said that discoveries could not be made to order and that the cause of cancer was not going to be revealed in dreams. He believed it was quite possible that the cause would one day be found by a genius working in his own way, and perhaps working by himself, but he had always persistently urged that it was wise and proper to give the independent worker facilities for working in established laboratories. The money that was given to help to find the cause of cancer would enable experts to be freed from the cares of practice and to devote their time to research. If they were successful, they would be able to reduce enormously the sum of human suffering.

Prof. W. S. Lazarus Barlow said that radium and the roentgen ray had been shown to be potent agents in the treatment of the disease, and work would proceed on that side. The curious power that existed in certain persons suffering from cancer to hold it in equilibrium for a number of years and on rare occasions to conquer it was also of extraordinary importance. He could not explain cases of that kind; nobody could, but they required further investigation.

### Ban on Marriages of Poverty

Dr. R. A. Gibbons, gynecologist to the Grosvenor Hospital, in a paper on the "State Certificates of Marriage," read before the Eugenics Education Society at Burlington House, put forward the suggestion that the state should prevent the marriage of those whose health, mental condition or inability to earn a livelihood made the production of a healthy family an impossibility. He said that the state might withhold a certificate of health in cases of persons suffering from venereal diseases, tuberculosis, mental deficiency or genuine poverty. Young men married when quite unable to keep a wife, with the result that children when born were underfed, neglected, and finally thrown on to the public funds. The state, he suggested, might insist on each individual's taking out a policy of insurance; and, if the medical examination proved unsatisfactory, the certificate could be withheld and marriage postponed. Sir John Bland-Sutton described this paper as an indictment of modern matrimony worthy of the prophet Hosea. Eugenics, it appeared, was going to arrange an entirely new kind of marriage. Sir W. Arbuthnot Lane said that it would take many years to get public acceptation for the suggestions made. The press was doing much to bring favor for such proposals, and it was a healthy sign that these subjects were now openly discussed.

### The Causes of Mountain Sickness

Lecturing at the Royal Institution on the effect of altitude on man, Prof. J. Barcroft, F.R.S., insisted that alpinism had been a science before it became a sport. Dr. Longstaffe, physician to the 1922 Everest Expedition, had pointed out that the climbing of high mountains was first undertaken on a considerable scale by scientific men at the end of the eighteenth century for the purpose of investigating the symptoms produced by the ascent to the rarefied atmosphere. At that time almost nothing was known about the causation of disease, and mountain sickness was almost alone in offering a pathologic condition to which a definite cause could be assigned. Some great mountaineers maintained that the fatigue factor was the essential cause and that the rarity of the atmosphere was not in itself of importance, but a recent expedition sent out by the Royal Society to study this question in the Peruvian Andes seemed to have established that the rarity was the essential cause of the trouble, though it was precipitated by muscular exercise, for muscular exercise increased the demand for oxygen.

### Explosion in an Operating Theater

A remarkable accident occurred in the operating theater of the Cheltenham General Hospital, in which the house surgeon and a patient received severe burns. The anesthetic had been successfully administered, when a spark from some electrical apparatus exploded a bottle of ether with great force. The ether burst into flames, which set fire to the house surgeon's trousers and severely burned his legs and hands. The patient was severely burned about the head. The other physicians escaped injury, but the nursing sister had her hair badly singed. The theater was set on fire, but the flames were put out by an extinguisher.

### Smallpox Increase

According to the quarterly statement of the registrar general, 1,003 cases of smallpox were notified in England and Wales during January, February and March of the present year. In the month of April, 438 fresh cases occurred. Last week, the notifications were 132. Thus, since New Year's Day, there have been 1,573 new cases. The subjoined table gives some idea of the march of smallpox:

*Notification of Smallpox in England and Wales*

| | Quarters | | | | Total for the Year |
|---|---|---|---|---|---|
| | First Cases | Second Cases | Third Cases | Fourth Cases | Cases |
| 1922..... | 178 | 305 | 213 | 295 | 991 |
| 1923..... | 519 | 707 | 662 | 585 | 2,473 |
| 1924..... | 1,003 | ... | ... | ... | ..... |

It is thus obvious that smallpox is steadily regaining its old ascendency in this country. Its "mildness," too, is beginning to change a little. Unless measures, far more drastic than any heretofore put into force, are taken, a great catastrophe may lie ahead.

### Sun Baths for School Children

Successful experiments have been made at Bournemouth in the improvement of the health of delicate and other children attending the elementary schools by means of sun baths on the beach or in the garden and sea bathing in the sun. In his report, the school medical officer, Dr. W. T. V. Styles, states that pretuberculous children improve in the summer months, but when the hours of sunshine diminish their condition is not so satisfactory. "The human race," he says, "tends to return to the primitive state in winter, and, like animals which hibernate or go to earth, mankind tends to take to his home and keep warm. In these modern days, when warm woolen clothing can be obtained at moderate prices and children can be warmly clad, it is not necessary for them to keep within doors. Every hour of sunshine in the winter must be made use of. During the summer I made some very interesting observations which were suggested by work being carried on in Switzerland. I advised the parents of delicate children that they should gradually tan the body of the child by the sun from head to foot. This was done on the beach by the bathing suit being the only form of apparel, or often in the garden at home. The children improved remarkably." Dr. Styles then applied the experiments to all children by impressing on mothers the importance of exposing the bodies of their children to the sun gradually. He finds that the child who tans well is the healthier child, and that some of the rays of the sun have a most beneficial effect. At Bournemouth it is now impressed on all children to keep at the sunny side of the road and never to walk on the shady side. Dr. Styles also finds that there is a value in sea bathing in the direct rays of the sun. Though the scientific explanation is yet wanting, he has little doubt that the value is directly associated with the action of the sun's rays on the body through the salt water medium. He believes that the value of sea bathing in the sunshine far surpasses fresh-water bathing.

## PARIS

*(From Our Regular Correspondent)*

May 2, 1924.

### Tuberculosis in Miners

Dr. L. Croizier, physician to the hospital of Saint-Etienne, which is the center of a rich coal region, presented recently to the Société des sciences médicales of that city a communication on tuberculosis in miners.

#### MORBIDITY AND MORTALITY

It appears that miners not only pay a heavy tribute to tuberculosis, but that more deaths from tuberculosis occur among miners proportionately than among the remainder of the population. The establishment of a special service for pulmonary tuberculosis in the Bellevue Hospital has made it possible, for the last four years, to make statistical researches along this line. The large number of physical examinations that have been made in this service furnished a fine opportunity to study the peculiar types of tuberculosis in miners; particularly the influence of anthracosis on the development of the disease.

The first thing that strikes one on entering the tuberculosis service is the exceptionally large number of miners in evidence. They constitute usually 50 per cent. of the total number of patients, and while at times the percentage falls below 50, it never goes below 30. There is certainly no other trade or occupation that furnishes so many tuberculous patients to the hospital. The question may be raised whether the large number of miners in the tuberculosis wards is not due to the fact that they constitute a majority of the population which forms the clientele of the hospital. As to that, Croizier replies that the last two enumerations give approximately 10,000 as the number of workmen in the mines. From this number, it would be proper to deduct those who work above ground, so as to consider separately those working below ground. Whether this deduction is made or not, the 10,000 workmen are far from constituting a majority of the total population. It may be more truthfully said that a larger percentage of miners enter the hospital than of any other class of workmen, owing to social conditions: their insanitary dwellings; their families (often large), huddled together in two or three small rooms, and, finally, their financial condition, which compels them to seek public aid as soon as the disease deprives them of the head of the family. But, if this finding is correct, one should discover in the medical wards the same percentage of miners that is

found in the tuberculosis service, for they doubtless go to the hospital just as readily for rheumatism, pneumonia or typhoid fever as they do for tuberculosis. With this idea in view, Croizier prepared a statistical table, covering an entire year of hospital experience and showing the percentage of miners treated in the general medical wards. He found that only 21 per cent. of these patients were miners, and of this number, many were in a condition entitling them to be classed as tuberculous. They had remained in the service to which they were first admitted because bacteriologic verification was lacking, either having been omitted, or owing to the fact that a single examination was negative, as frequently happens in fibroid tuberculosis, and sometimes during the development of other forms.

It may be said that these are only the statistics of one hospital and do not reflect the exact situation; there are possibly many factory employees, small merchants and others who contract tuberculosis, and who prefer home treatment without ever being seen in a hospital. For this reason, Croizier carried his inquiry further. For the three years covered by his statistics—1920, 1921 and 1922—the deaths from tuberculosis among the entire population, miners excepted, amounted to 10.5, 11.5 and 14 per cent., respectively, whereas among miners the percentages of deaths from tuberculosis for these years were 20.3, 31 and 34, or almost twice as large as among the remainder of the population.

ETIOLOGY

What are the causes for the severity and high incidence of pulmonary tuberculosis in miners? Naturally, one is inclined to think that the inhalation of coal dust is an important influence; indeed, on the basis of a large number of necropsies, Croizier considers that coal dust is not a negligible factor. For example, he says, take ten miners who have spent the same length of time in mines, performing the same work and all of whom succumb to tuberculosis, and one will find that at least eight of the ten present the clinical and anatomic picture of an ordinary acute caseous tuberculosis, and the histologic examination will not reveal in these eight any more anthracosis than in any other person. Two out of the ten patients, however, will present a marked black discoloration about the tuberculous lesions. These patients, during their illness, doubtless had the well known dark colored purulent sputum. A relation certainly exists between the anthracosis and the lesions, for it is always at the site of the lesions that the anthracosis exists or is most marked. It is rather exceptional to find any considerable collections of coal dust in the parts of the lungs not involved by tuberculosis; on the other hand, it is frequent to find these collections in the diseased portions of the lungs, where they may or may not be the site of an advanced ulcerative process. In most cases, anthracosis establishes about the cavities a more resistant tissue which limits the caseation by stimulating the production of fibrous tissue, in which even the microscope reveals no trace of normal lung structure. These facts lead one to conclude that the evolution of fibroid tuberculosis, very likely, is largely brought about by the anthracosis. Patients who do not have these collections of coal dust have the ordinary caseous tuberculosis; those who have such collections are more likely to develop fibroid tuberculosis, the coal dust furnishing, it seems, the elements that promote such organization.

Another factor contributing to the spread of tuberculosis among miners is the presence of numerous infected persons in a confined, imperfectly ventilated area.

### League of Red Cross Societies

The general council of the league of Red Cross societies opened its session, April 28, in the mansion placed at its disposal by the Union des femmes de France. The representatives of fifty-one national Red Cross societies were present. The officers in charge were: president, Judge John Barton Payne, former member of the Wilson cabinet, president of the council of directors of the Red Cross and also president of the American Red Cross Society; vice presidents, M. Hébrard de Villeneuve, the French delegate; Mr. de Souza-Dantas, Brazilian minister; Mr. Sugimura, Japanese delegate, and Miss Masaryk, daughter of the president of Czechoslovakia. After an opening address by Mr. Payne, the Japanese delegate tendered the thanks of the Japanese Red Cross to the various Red Cross societies for the services rendered after the earthquake. The Chilean delegate, Mr. Quezada, also expressed the gratitude of Chili for the aid received from the Red Cross societies following the recent earthquake in that country. The delegates from Argentina, Colombia, Ecuador and Peru also delivered addresses.

The agenda of this session of the council concerned primarily the subject of the organization of the league, the proposals relative to revising the constitution, and relations with other international societies. The eventual merger of the international committee of Red Cross societies of Geneva and the league of the Red Cross societies was discussed. After an exchange of views between Mr. Payne and M. Gustave Ador, president of the international committee of the Red Cross of Geneva, it was decided that the negotiations should continue between the committee of Geneva and the investigating committee of the league. Once an agreement has been reached, a general assembly in which both societies will be represented will be held at Geneva. But, as the investigating committee needs considerable time to go over the questions involved in a merger, it was decided that the constitution of the league should not be modified before Dec. 31, 1925. The investigating committee will use the time that intervenes to hold a referendum among the fifty-one societies represented on the general council.

The council was received at the Hotel de Ville by the representatives of the government of Paris. The first to greet them was M. Georges Lalou, president of the municipal council, who referred in his welcoming words to the "marvelous development from the humble seed sown in Genevan soil by the great philanthropist Henri Dunant, shortly after the battle of Solferino (June 24, 1859)." M. Juillard, prefect of the department of the Seine, assured the guests that Paris appreciated most highly the work of the council which carried on such a wonderful altruistic movement during the war. Mr. Payne thanked the city of Paris, and the guests of the municipality recorded in the book with the golden seal the minutes of the visit.

### The Gift of a Million Dollars to the University of Paris

A gift of a million dollars has been made to the University of Paris for the erection, in the so-called University City, of a house primarily for Belgian students, and secondarily for students of Limburg and Luxemburg. This gift will bear the name of the "donation Biermans-Lapôtre," from the names of the donors, Mr. Biermans and Mrs. Biermans (née Lapôtre), who are of Dutch and Belgian origin, respectively. They are, however, residents of Canada, in which country their fortune was made.

### Congress of French-Speaking Pediatricians

The Association française de pédiatrie is organizing a congress to be held in Paris, Sept. 29 to Oct. 1, 1924, under the chairmanship of Professor Marfan. The topics on the program are: (1) The Etiology and Pathogenesis of Rickets, by Dr. Lesné of Paris; (2) The Prophylaxis and Treatment of Syphilis in Children, by Dr. L. Tixier of Paris, and (3) Treatment of Purulent Pleurisy in Children, by Dr. Ribadeau-Dumas of Paris and Dr. Rocher of Bordeaux.

Aside from members of the association, both French and foreign physicians may attend the congress as "participating members." Those wishing to attend should make known their desire, before September 10, to the general secretary of the congress, Dr. H. Barbier, 5, rue de Monceau, Paris, and obtain introductions from three French members of the Association française de pédiatrie. The membership fee for "participating members" is 60 francs. Members of the family may attend on their request on payment of a fee of 30 francs.

## BELGIUM

*(From Our Regular Correspondent)*

April 17, 1924.

### Government Inspection of Arsphenamins

Following numerous cases of intoxication from arsphenamins, a few years ago, the government established a laboratory to inquire into and control the composition of antisyphilitic drugs. In 1920, especially, numerous brands of arsphenamin were put on the market. Several physicians sent samples of these arsphenamins to the bureau of public health. They were not entirely soluble, and the government inspectors of pharmacies seized suspected supplies. It was found that some of these samples contained no arsenic, and that all were partially insoluble. Official supervision of arsphenamins was justified further in that, to help in the antivenereal campaign, the government authorized physicians to prescribe certain arsenicals at government expense. In view of this, the analysis of products the manufacturers of which demanded acceptance by the government was necessary.

M. de Myttenaere, of the Academy of Medicine, recently gave an account of the results of this official supervision. The state laboratory has examined 153 distinct specimens, twenty-nine of which were not accepted, six on account of a deficiency of arsenic and twenty-three because of excessive toxicity. One hundred and twenty-four lots, comprising about 300,000 ampules, were accepted. There seems to have been a marked improvement in the manufacture of arsphenamins since government supervision was inaugurated. Manufacturers have been induced to put on the market only products whose arsenic content ranges between 19 and 21 per cent., and, since government control was established, no accidents from the use of controlled products have occurred. At least, no complaints have been received, and there is reason to believe that if accidents had been observed following the injection of products bearing the government inspection stamp, they would certainly have been reported to the bureau of public health.

### Medical Commissions

In every province of Belgium, there is at least one medical commission (often several) whose duty it is to regulate and control the medical and allied professions. The members of these commissions are appointed by the king for six years from a double list of candidates presented, respectively, by the physicians and pharmacists that make up the constituencies. However, the president and the secretary; a veterinarian, an engineer and an architect, are appointed directly by the king for a term of six years.

These boards perform the duties of a commission of public health in their respective districts. Since their duties extend to problems that have a more or less remote connection with medicine, a veterinarian, an engineer and an architect, likewise the director of the provincial institute of bacteriology, are added to the commissions.

The medical commissions are authorized to (1) examine the credentials of those who settle in their district to practice any branch of the healing art; (2) to furnish certificates to those who desire to become midwives, dentists or nurses; (3) to see that the healing arts are practiced properly and in a regular manner; (4) to supervise everything that concerns the health of the people, and (5) to control contagious diseases and epidemics in their district.

### Treatment of Typhus Fever

Dr. De Knop had an opportunity in the recent Greek defeat to try a new therapeutic method in numerous cases of typhus fever. He has just published a monograph which gives the results of his observations. He used a colloidal and bacterial mixture of which each cubic centimeter contained: *B. typhosus*, 5,800,000; *B. coli*, 5,000,000; synthetic colloid, 0.00005 gm.; methylene blue, a trace. The dose by intravenous injection was 2 c.c.

De Knop says that the doses injected were extremely small in comparison with doses of vaccines and colloids commonly used for therapeutic purposes. It seems, therefore, that the colloid associated with bacterial antigens reinforce one another in their action. In no case was there any serious reaction from the vaccine. Neither age nor severity of the disease constituted a contraindication. The treatment is not specific.

The character of the results secured were: (1) frank and rapid retrogression of the principal symptoms; (2) improvement in the pulse; (3) rapid and regular defervescence, and (4) absence of complications.

### Radium Therapy

In a communication on radium therapy of tumors of the accessory sinuses, Goris and Dujardin report their results secured in twenty cases that have been followed for periods ranging from three to eighteen months. In this connection Dr. Sluys made a statement regarding the principles that should be followed at present in combined radium and surgical treatment. Surgical specialists and radium therapeutists should think and work hand in hand. Furthermore, in the publication of results, great technical precision should be observed, for we are now right in the midst of an evolutionary period, and the experience of all is needed to overcome the countless difficulties. Indeed, the combined radium and surgical method is very difficult to apply, from a technical point of view, in otorhinolaryngology, and overdosage is more to be feared than anywhere else.

### Purpura in Childhood

Before the medicosurgical society of Brabant, Dr. Pechère recently presented a communication on purpura in childhood in connection with four cases that he has observed. The rheumatic type is most common. The infectious type may assume the appearance of typhoid fever and may be on the fulminating order. A third type of purpura is known by the name of Werlhof's disease, which is characterized by mild symptoms. Purpura is associated with an alteration of the blood serum, but the nervous system may play a rôle in its production. In fact, it will sometimes be noted that the patches developing along the nerve paths are symmetrical.

### Hematosis in Relation to Shock

Dr. Baruch has now published in book form his work that won the Alvarenga prize, awarded by the Royal Academy of Medicine. This important experimental study on the phenomena of shock seems to establish that the state of shock depends on a qualitative deficiency in the hemoglobin. Coincident with the production of shock, a change—a sort of toxic change—in the hemoglobin takes place which modifies it so as to make it unfit to perform its function. This may be regarded as at least an essential factor, if not the sole cause, of the reduction of gaseous exchange. The author was able to establish the following:

1. Whatever determines experimental shock in the dog, one always observes a diminution in the quantity of oxygen absorbed by the blood of the carotid artery. The carbon dioxid of the venous blood is likewise diminished.

2. The alteration of the oxygen-carrying capacity of the blood is a sudden manifestation noted during the first hours of shock. Moreover, it is definite and final, in that the change is not progressive from the beginning of shock until the termination of life, as one might expect.

3. The obstruction to aeration in the lungs is temporary, lasting during the period of anesthesia. The diminution in the amount of oxygen absorbed lasts only so long as a certain amount of the anesthetic remains in the blood. As soon as this substance is eliminated, the function seems reestablished in its integrity and the amount of oxygen absorbed again becomes normal.

4. By transfusion or injection of a certain definite volume of blood, it seems to be demonstrated not only that the blood of an animal in shock becomes incapable of effecting aeration but that, furthermore, the properties of new hemoglobin might be affected.

5. On the other hand, no alteration results from the injection of blood serum or plasma. It seems probable, therefore, that the alteration is brought about through changes in the blood cells or the hemoglobin.

### Death of Dr. Charles Jacobs

The death of Dr. Charles Jacobs, who had been ill for many months, is announced. He was one of the best known operators in the field of gynecology. In fact, it may be said that Jacobs was the founder of operative gynecology in Belgium. He was also a precursor in radium therapy, his works on this subject dating back to 1911.

He founded, in 1889, the Belgian Society of Gynecology and Obstetrics, of which he was successively treasurer, general secretary, vice president and president. In 1896, the high esteem in which he was held by his confrères caused him to be appointed honorary president of this circle, of which, up to the last few years, he was the quickening spirit. He was the founder also of the international congress of gynecology and obstetrics. He organized the first meeting of this society in Brussels in 1892, and he had the pleasure of witnessing the increasing success of these international congresses, in which the most eminent gynecologists of the world collaborated.

### Brown Bread Versus White Bread

With the fall of the franc, a question much discussed during the war has again come up. Shall we eat brown or white bread? Dr. Van Nypelseer has made an ardent plea in the *Bruxelles médical* to reduce the consumption of white bread. He says that its use as food is not based on observed facts, and that it is in opposition to biologic principles. Neither the Academy of Medicine nor physiologists recommend bread made from highly bolted flour. Grain merchants and stock raisers oppose it. The increase in the consumption of white bread in western Europe is due to selfish interests, ignorance and blindness. It constitutes a grave social danger. Bread should be made from good wheat flour, ground between millstones, and bolted so as to retain from 85 to 87 per cent. of the grain. The removal from flour of essential parts of grain induces tuberculosis, rickets and nervous and mental debility.

### Radio Talks on Hygiene

I have frequently referred to the methods which the Red Cross, under the leadership of Dr. Depage, has used to teach hygiene to the public. Its latest method is wireless telephony. It is estimated that more than 30,000 persons listened in when talks on hygiene were given along with musical numbers on a recent radio program.

General Wilmaers, of the army medical corps, outlined the work of the Red Cross. Dr. René Sand, general secretary of the International League of Red Cross Societies, talked on hygiene in relation to happiness and pointed out how young and old could avoid disease by living more sensibly. He tabued late dinners and indigestible foods, leading a sedentary life, and advised keeping the windows open, and drinking and smoking more moderately.

Dr. Gengou discussed the subject of a child's inherent right to health. Inculcating respect for paternal authority, he said, does not allow parents to forget their duties to children. Parents must guard the health of their children. While the society for the protection of children has reduced the infant mortality rate, it ought to be made possible in every instance for the mother to remain near her child instead of returning a few days after labor to the factory. These radio talks seem to be very popular.

## BUDAPEST

*(From Our Regular Correspondent)*

April 25, 1924.

### Criticism of the Younger Practitioners

The chief medical officer of Budapest, Dr. John Vegh, has just published statistics on the public health of Budapest in the latter half of 1923, which in general was better than in the first half of the year. The number of acute infectious diseases has decreased from 7,875 in the first half to 3,816 in the latter half of the year. On the other hand, tuberculosis claimed many lives, in 1923 the unprecedented number of 3,503. Dr. Vegh's report gives a deplorable picture of the housing conditions in Budapest. The majority of workmen live in overcrowded houses, infested with vermin; two and three people occupy one bed, and the natural consequence is illness, misery and depravity.

In this report, the chief medical officer sharply criticizes the younger generation of practitioners. He tries to prove with statistics that they were the cause of the spread of infectious disease. In his opinion, many young physicians, through lack of practice, have not recognized the infectious diseases. According to the official data, 156 patients with scarlet fever have been admitted to the St. John Hospital with a wrong diagnosis, and in another hospital, ten cases. These patients were treated before admission to the hospital as mild, non-infectious cases, and were sent in with all kinds of diagnoses except the right one. Many children have been treated for sore throat who later, after having spread infection among their comrades in school in large numbers, were found to have scarlet fever.

In the obstetric ward of a large municipal hospital there was a patient with an eruption which the young physician regarded as varicella. After several days the diagnosis of smallpox was made, but by this time seventeen women in childbed had contracted the disease, and the majority of the infants perished. The report enumerates similar cases, and states that if the physicians do not learn to diagnose the infectious diseases in the university, they are of no assistance to the magistrates, and are a menace to public sanitation. The diagnostics of infectious diseases cannot be learned from books or from lectures, but must be learned at the bedside. The student has to see many cases in the clinical wards, for which they had ample time and occasion had they visited the wards. Dr. Vegh concludes his report with the hope that these statistics will awaken the youth to the great task which they undertook in selecting as a career the medical profession, and that they will bring a blessing to mankind and not disaster.

### The Brain of a Prodigy

A violinist, 14 years of age, lost his life recently in an automobile accident. The boy, John Nagy, was an extraordinary pupil of the Budapest Musical Academy. According

to his masters he surpassed not only his comrades, but also artists. When 12 years of age, he did not find the pieces of Paganini difficult. In fact, he edited Paganini's pieces so that others could not play them. Important musical experts said that Paganini's caprice is perfect only as he played it. He had a manner of expression in playing which was his own conception and he had an extraordinary talent for improvisation. But it was not only in music that he was a genius. He had extraordinary talent for languages, having learned English in two months, so that he could speak with perfect accent and pronunciation, according to the English who reside in Budapest. He spoke Dutch, and, though not a Jew, he learned the Hebrew language simply for pleasure.

This boy, in crossing a road in Budapest with his father, was knocked down by an automobile, and died in two hours. The inquest showed that death was due to rupture of the bronchus and of the esophagus, and to injuries to the intestine. The circumference of the skull was 50.5 cm., its longitudinal diameter 17.5 cm., its transverse diameter 14.5 cm., and the thickness of the bone, from 3.5 to 4.5 mm. The weight of the brain with the membranes and blood vessels was 1,445 gm.; the membranes and the vessels separately weighed 53 gm., so that the net weight of the brain was 1,392 gm. The cerebellum, the pons and the medulla oblongata were separated, the large brain was halved, and the parts were measured singly. The right lobe weighed 612 gm.; the left, 603; the cerebellum, 182.5; total, 1,377.5. The missing 10.5 gm. was the weight of the membranes torn down from the median surface of the brain. Thus, the weight of the brain, in view of the height and weight of the deceased, was well above normal.

In external appearance, the left lobe had strongly developed gyri and furrows, which were peculiar. The temporal and parietal lobes were striking. Particularly was this true of the gyrus temporalis superior, which for the most part was very wide. The brain has been preserved and placed in the pathologico-anatomic institute of the university.

### Disease—A Luxury

The medical profession in Budapest is full of bitter complaints. It is obliged to raise fees to meet continuously more difficult living conditions, and the greater part of the community is unable to bear them. Therefore, extreme economy is practiced to the detriment of public health and the medical profession. University professors feel the shortage of patients, but the majority of practitioners are struggling for bread. A medical visit to a patient's house costs 100,000 kronen, but often this sum has to be reduced, as the patient is utterly unable to pay so much. While the community was not very liberal with physicians in normal times, now it economizes. The raising of the price of street car tickets always means the loss of some patients living at a distance from the physician's office. And the question is asked, Why consult a physician, when the medicine he prescribes costs more than the patient can pay? The consequence is that physicians are trying to find other occupations. Some have resigned after twenty-five years' practice to become bookkeepers or clerks. Dental practitioners also have taken down their name plates. The other day a physician took a receipt to the editor of a medical journal, showing him that the ministry of public welfare awarded him 4,300 kronen, at present less than the price of two street car tickets, for having attended, in 1923, through three quarters of the year, the families of three ministerial officials. He took the receipt to the magistrate to prove his identity, and afterward went to the treasury, spending a forenoon getting the money, meanwhile spending twice the amount for transportation.

This state of affairs causes great distress, and as the public suffers the same difficulties in getting a living, raising the fees does not improve the condition. They are trying to influence the state to come to their assistance until the economic conditions become stable.

## BERLIN

*(From Our Regular Correspondent)*

May 4, 1924.

### Height and Weight of School Children

Professor Martin, director of the Anthropologic Institute in Munich, reported recently at a meeting of the Gesellschaft für Anthropologie, Ethnologie und Urgeschichte the results of examinations of school children with respect to height and weight. About 8,000 children of Munich, ranging from 6 to 14 years of age, have been examined. The present generation of children was found inferior to earlier generations, the reason assigned being war and postwar influences. From comparisons with the results of similar examinations of school children in America, it is plain to be seen that German children are considerably below American children in height and body weight. Of 16,203 pupils of the primary and grammar schools of Berlin, measured in 1923, the boys had an average height of 128.2 cm. at the age of 9½. The average height of 24,087 pupils of forty-five municipal secondary schools was 3.9 cm. more, or 132.1 cm. The 14-year-old boys of the grammar school were 18.9 cm. taller than the boys aged 9½. The 14-year-old boys in the schools of higher learning were, however, 2.5 cm. taller than the grammar school boys. The height of the girls, aged 9½, in both schools was under that of the boys; their height in the grammar schools being only 126.6 cm., and in the higher institutions, 131.1 cm. The difference in height for the girls in the two kinds of schools (4.5 cm.) was greater than for the boys. The 14-year-old girls of the grammar school, if it is permissible to compare the figures for the same year, were 21.9 cm. taller than the girls aged 9½; the 14-year-old girls in the schools of higher learning were 22 cm. taller than the girls aged 9½ in the same schools. Therefore, in contradistinction to the boys, the growth of the girls was about the same in the two kinds of schools. The weight of the children could be expected to correspond to the varying height. The boys, aged 9½, in the grammar schools weighed 26.1 kg.; in the schools of higher learning, 28 kg., or 1.9 kg. more. At the age of 14, the weights for the boys in the two schools were, respectively, 37.7 and 41.9 kg., an excess of 4.2 kg. for the boys in the schools of higher learning. In the three and one-half years, the pupils of the grammar schools had increased 11.6 kg., and those in the classical schools, 13.9 kg. In three and one-half years, the girls, however, in the grammar schools had increased 15.5 kg. and, in the classical schools, 14.8 kg. The girls in the schools of higher learning had thus gained 0.7 kg. less in weight than the pupils of the grammar schools.

### Vital Statistics for Bavaria

According to an incomplete report of the Bavarian Statistical Bureau, the records of marriages and births for the first three quarters of 1923 and for the corresponding quarters of 1922 and of 1913 were as follows:

*Vital Statistics*

| | Marriages | | | Births (Including Stillbirths) | | |
|---|---|---|---|---|---|---|
| Year | 1923 | 1922 | 1913 | 1923 | 1922 | 1913 |
| First quarter..... | 14,383 | 15,448 | 10,706 | 48,111 | 50,402 | 56,427 |
| Second quarter..... | 17,180 | 20,240 | 14,719 | 46,860 | 48,206 | 52,845 |
| Third quarter..... | 13,911 | 16,476 | 10,718 | 42,256 | 45,178 | 52,615 |

In 1923, as is noticeable also in 1922 and in 1913, the marriages reached as usual their highest level in the second quarter, and dropped down in the third quarter. As a whole, the showing for 1923 is much lower than in 1922, so that the excess of 1923 over 1913 is no longer so great as was noted during the first years after the war.

On the other hand, the lowering of the birth rate in 1923 marks a further decrease, as compared with the prewar years. As early as 1922, the decrease in the birth rate for the third quarter, as against the second quarter, was in marked contrast to 1913, in which year there was, as usual, an increase in the third quarter over the second quarter, and in 1923 the decrease for the third quarter was even greater than in 1922. This fact is no doubt due to financial depression; for the number of marriages contracted during the previous quarters which would affect the birth rate for the first three quarters of 1922 and of 1923, respectively, was virtually the same in each instance, while the number of marriages entered into during the quarters affecting the birth rate for 1913 was considerably smaller than for 1922 and 1923. To illustrate: Corresponding to the 42,245 births for the third quarter of 1923, there were 19,119 marriages entered into in the fourth quarter of 1922, and as affecting the 45,178 births of the third quarter of 1922, there were 19,219 marriages contracted in the fourth quarter of 1921, while the 52,615 births of the third quarter of 1913 were influenced by the 13,148 marriages in the fourth quarter of 1912. Thus, it appears that, for the third quarter, for each marriage contracted nine months previously, there were, in 1913, 4.0 births; in 1922, 2.4 births, and in 1923 only 2.2 births.

The general mortality and the infant mortality for the years 1922, 1923 and 1913 are as follows:

*Vital Statistics*

| | General Mortality (Including Stillbirths) | | | Mortality of Infants Under 1 Year Old | | |
|---|---|---|---|---|---|---|
| Year | 1923 | 1922 | 1913 | 1923 | 1922 | 1913 |
| First quarter..... | 33,562 | 34,100 | 34,200 | 7,711 | 8,165 | 9,008 |
| Second quarter..... | 29,568 | 30,317 | 33,280 | 7,051 | 7,974 | 9,676 |
| Third quarter..... | 26,411 | 25,271 | 29,548 | 6,740 | 6,543 | 9,382 |

The general mortality rate is greatly affected by the peculiar conditions determining infant mortality. The decrease in the general mortality rate, as compared with the prewar period, can be explained partly by the decrease in the birth rate and partly by the transformation in infant mortality observable since 1921; for the peak of infant mortality is no longer reached in midsummer as formerly, but the two highest points of the curve now fall in the transitional periods —from spring to summer and from summer to winter. Other favoring causes are the fact that in some instances mothers who would not ordinarily nurse their infants are compelled for financial reasons to do so. In other cases, when the mother is unable to nurse her infant wholly or even in part, better food as a substitute is now being procured. Public and private welfare work also have reduced the fatalities from gastric and intestinal affections. However, the inadequate protection of infants against colds and infections during cold weather has caused an increased mortality for the winter months.

As for the increase in infant and also general mortality in the third quarter of 1923, as compared with 1922, the cause is essentially the same as for the decrease in the birth rate —the prevailing economic distress. The main influences are: deterioration in the food supply, which contributed to the recent increase in tuberculosis mortality; a necessary falling off in the activities of welfare societies, and the bad housing situation. No untoward influence can be ascribed to the weather, for the summer of 1923 was cooler than that of 1922.

As a result of the low birth rate and the occasional increases in the death rate during the first three quarters of 1923, the excess of births over deaths was much less than in 1922 and 1913.

*Excess of Births Over Deaths*

| Year | 1923 | 1922 | 1913 |
|---|---|---|---|
| First quarter..... | 14,589 | 16,302 | 18,218 |
| Second quarter..... | 17,301 | 18,078 | 19,056 |
| Third quarter..... | 15,845 | 19,904 | 23,070 |

## Marriages

HARRY G. MELLON, Pittsfield, Mass., to Mrs. Elinor Martha Safford of Greenwich, N. Y., at New York, February 28.

WILLIAM LAWRENCE GATEWOOD, New York, to Miss Virginia Conway DeJarnette of Richmond, Va., April 12.

HUMIE Z. L. HORTON, Apex, N. C., to Miss Lucille Audrey Barnes of Richmond, Va., April 17.

FELIX ANTHONY BLANCHARD to Miss May Gilchrist Tatum, both of McColl, S. C., recently.

JOHN B. RENSHAW, Los Angeles, to Mrs. Hattie Bell Ellis of Glendale, Calif., March 1.

FRANK LEE CATO, JR., to DR. CORINNE MARIE ROQUET, both of New Orleans, March 1.

HARRY W. DAHL to Miss Helen Anderson, both of Des Moines, Iowa, March 25.

HARRY R. CARSON, Knoxville, Iowa, to Miss Lillian Walker of Linden, March 27.

## Deaths

**Uriah Kinder Essington** ✠ Columbus, Ohio; Starling Medical College, Columbus, 1896; served in the M. C., U. S. Army, during the World War; on the staffs of the Columbus Radium, McKinley and White Cross hospitals; aged 55; died, May 6, at the Augustana Hospital, Chicago, following an operation for strangulated hernia.

**William Alexander Shannon** ✠ Seattle; Trinity Medical College, Toronto, Ont., Canada, 1887; past president of the King County Medical Society, member of the board of education; on the staffs of the Providence Hospital and the Columbus Sanitarium, where he died, May 6, of acute endocarditis, aged 66.

**Daniel LaFerte** ✠ Detroit; Jefferson Medical College of Philadelphia, 1871; professor of orthopedic surgery at the Detroit College of Medicine and Surgery, member of the Detroit Surgical Society; formerly on the staffs of the Harper and the Children's Free hospitals; aged 75; died, May 18.

**Winslow Burrell French,** Rockland, Mass.; Boston University School of Medicine, 1891; formerly demonstrator of anatomy and instructor of gynecology at his alma mater; at one time on the staffs of the Emerson, and Massachusetts Homeopathic hospitals, Boston; aged 54; died, May 11.

**Albert Euclid Hinsdale,** Cleveland; University of Michigan Homeopathic Medical School, Ann Arbor, 1906; formerly professor of materia medica at the Ohio State University College of Homeopathic Medicine, Columbus; aged 43; died, May 8, of pneumonia.

**Thomas Joseph O'Neill,** Anderson, Ind.; Medical College of Indiana, Indianapolis, 1904; member of the Indiana State Medical Association; served in the M. C., U. S. Army, during the World War; aged 42; died, May 13, at St. Joseph's Hospital, of pneumonia.

**John Marshall Alexander,** Fulton, Ky.; Bellevue Hospital Medical College, New York, 1891; member of the Kentucky State Medical Association; served in the M. C., U. S. Army, during the World War; aged 57; died, May 13, of cerebral hemorrhage.

**Edmund Morton Walker,** Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1903; associate professor of biology at his alma mater; president of the Bank of Commerce; aged 75; died, March 27, of pneumonia.

**Frederick Thomas Miles** ✠ Salem, Ohio; Western Reserve University School of Medicine, Cleveland, 1892; served in the M. C., U. S. Army, during the World War; aged 55; died suddenly, May 13, of cerebral hemorrhage.

**Leon Jacobs** ✠ Yuma, Ariz.; Rush Medical College, Chicago, 1903; physician to the Fort Yuma Indian School; served in the M. C., U. S. Army, during the World War; aged 46; died, May 4, of injuries received in an accident.

**John Ernest Laul,** Elmhurst, N. Y.; New York Homeopathic Medical College and Flower Hospital, New York, 1918; served in the M. C., U. S. Army, during the World War; aged 29; died, May 13, of septicemia.

**Samuel Backus Lyon,** White Plains, N. Y.; George Washington University Medical School, Washington, D. C., 1879;

for more than twenty years superintendent of the Bloomingdale Hospital; aged 82; died, May 12.

**Albert Alonzo Sargent** ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1893; formerly assistant demonstrator of histology and embryology at his alma mater; aged 51; died, May 11, following a long illness.

**James H. Wroth,** Jemez Springs, N. M.; University of Pennsylvania School of Medicine, Philadelphia, 1878; member of the New Mexico Medical Society; president of the board of education; aged 69; died, May 6.

**Maude Kent,** Battle Creek, Mich.; Boston (Mass.) University School of Medicine, 1886; associate editor of *Good Health;* aged 59; died, May 8, at the Battle Creek Sanitarium, of cerebral hemorrhage.

**Charles Benjamin Stevens** ✠ Worcester, Mass.; Medical School of Harvard University, Boston, 1894; formerly on the staffs of the Worcester Isolation, and City hospitals; aged 59; died suddenly, May 14.

**Joseph Tkadlec,** Cazenovia, Wis.; German Medical College, Chicago, 1897; member of the State Medical Society of Wisconsin; aged 56; died suddenly, May 9, at Reedsburg, of heart disease.

**David S. Olmstead** ✠ Millersburg, Ohio; University of Wooster Medical Department, Cleveland, 1880; aged 67; died, April 26, at the Lakeside Hospital, Cleveland, of carcinoma of the cecum.

**Edgar Randolph Osterhout,** Ithaca, N. Y.; Bellevue Hospital Medical College, New York, 1884; member of the Medical Society of the State of New York; aged 66; died, March 14.

**Joseph Reese,** Chicago; Medical College of Ohio, Cincinnati, 1884; member of the Illinois State Medical Society; aged 63; died, May 19, of injuries received in an automobile accident.

**Oscar Barre Simpson,** Prosperity, S. C.; Medical College of the State of South Carolina, Charleston, 1910; member of the South Carolina Medical Association; aged 41; died, May 7.

**William Henry Amerson** ✠ Chicago; Chicago Homeopathic Medical College, 1890; University of Illinois College of Medicine, Chicago, 1901; aged 55; died, May 20, of pneumonia.

**George McClellan Billmeyer,** Zion, Ill.; Rush Medical College, Chicago, 1897; member of the Illinois State Medical Society; aged 61; died, May 15, of cerebral hemorrhage.

**Edgar Clarence Levine,** Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1913; on the staff of the Royal Victoria Hospital; aged 47; died, April 16.

**Frank Garbutt,** Mechanicsville, N. Y.; Albany Medical College, New York, 1872; member of the Medical Society of the State of New York; aged 76; died, March 2.

**Byron Benjamin Godfrey** ✠ Holland, Mich.; Rush Medical College, Chicago, 1878; health officer of Holland; aged 76; died, May 6, following a long illness.

**Thomas Benton Francis,** Palo Alto, Calif.; Rush Medical College, Chicago, 1879; formerly a practitioner in Minnesota; aged 68; died recently.

**George W. Judson,** Lyn, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1879; aged 65; died, April 3, of heart disease.

**Thomas W. Morgan,** Spartanburg, Ind.; Cleveland (Ohio) College of Physicians and Surgeons, 1893; died, May 1, of heart disease.

**George Wallace White,** Jersey City, N. J.; Medical Department of Columbia College, New York, 1894; aged 52; died, April 29.

**Charles Harmon Smith,** Petrolia, Ont., Canada; Trinity Medical College, Toronto, 1896; aged 54; died suddenly, April 15.

**David L. Howerton** ✠ Hurdland, Mo.; Northwestern Medical College, St. Joseph, 1892; aged 56; died, May 1, of heart disease.

**John H. Sterling** ✠ Brooklyn; Medical Department of the University of the City of New York, 1869; aged 81; died, May 4.

**Samuel S. Weidner,** Fairbury, Neb.; Rush Medical College, Chicago, 1875; aged 75; died, May 1, at Clarinda, Iowa.

**Edward John Kieffer** ✠ Chicago; Rush Medical College, Chicago, 1902; aged 44; died, March 14.

**George W. Dewey,** Crawfordsville, Ind. (licensed, Indiana, 1897); aged 79; died, May 12.

# *The Propaganda for Reform*

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

## SAN-I-SAL

### The Patent Office Again Demonstrates Its Ignorance of Modern Medicine

Large and expensive newspaper advertisements have appeared during the past month or two advising the obese public of "A Guaranteed Way to Take Off Two to Five Pounds in One Bath." The product advertised is "San-I-Sal, the Pine Hot Springs Bath." It is sold by the San-I-Sal Laboratories of Washington, D. C. The advertising claims are typical of "patent medicine" obesity cures. Thus:

"San-I-Sal takes off weight just where reduction is most needed."

"Naturally, this treatment relieves rheumatic pains, breaks up colds and tones up the body."

"Men and women taking these baths lose weight, improve their health, and become greatly rejuvenated."

"No tiresome exercise—no starvation diet—no mysterious internal treatment. You can now reduce your weight quickly and safely with healthful pine hot springs baths—in your own bath room."

Greatly reduced reproduction of a typical San-I-Sal newspaper advertisement.

The formula and process of making San-I-Sal are covered by the United States Patent No. 1465530 issued Aug. 21, 1923. The patent specifications covering the patent of this number show that on that date a patent was issued to Herbert Wilbert Smith of Washington, D. C. The "invention" is said to relate to "a composition of matter for producing a medicated bath of particular value in the treatment of obesity." The composition has the following ingredients in the proportions stated:

| | |
|---|---|
| Epsom salt | 90 per cent. |
| Baking soda | 2 per cent. |
| Table salt | 5 per cent. |
| Canada balsam | 2 per cent. |
| Oil of pine needles | 1 per cent. |

The specifications then describe how the pine oil is mixed with the baking soda and the Canada balsam first added and, after being allowed to stand for several hours, finally the Epsom salt and table salt. They state also that the stuff is

used by adding it to hot bathing water and that "the pine oil operates to open the pores of the skin" while the Epsom salt causes sweating. The table salt is added, one learns, to counteract "the tendency of the skin toward looseness which usually occurs from long continued bathing in hot water." The Canada balsam serves the same purpose as the pine oil, but "any coniferous oils or extracts thereof having the general property of Canadian balsam may be substituted."

The specifications also declare that this Epsom salt mixture when used in the bathing water has been found to afford "great relief in cases of inflammatory rheumatism and ailments of a similar character." Furthermore, the mixture may be used "to obtain a velvety, clear complexion" and it "has also been found very useful and efficacious in the treatment of acne and similar skin troubles."

It should be remembered that the claims just recounted are not taken from a "patent medicine" advertisement, but from specifications issued by the United States Patent Office.

In the directions for the use of "San-I-Sal" the hopeful sufferer is told to draw in the bath tub enough water, as hot as can be comfortably borne, to cover the body. San-I-Sal is then placed in this water and the patient gets into the tub. She (presumably, it is usually "she") stays there for a full half hour, adding hot water to keep the bath as hot as can be borne. After the bath the victim goes to bed and sweats for half an hour. The leaflet claims that the reducing effects "continue for two or three days after each bath" for "a certain amount of San-I-Sal taken up by the body continues the work of eliminating excess adipose tissue."

That the sweating induced by staying for half an hour in a tub of water as hot as can be borne will reduce the weight of the body to the extent of the sweat excreted is, of course, obvious. Equally obvious is the fact that within a very few hours the body will have received enough additional water to make up the loss. That a mixture of Epsom salt, baking soda and table salt with a small quantity of Canada balsam and oil of pine needles should be granted a patent by the United States Patent Office as a new and useful invention makes one wonder again just how much intelligence on medical subjects there is displayed by the Patent Office.

## Correspondence

### "CEREBRAL ANGIOSPASM"

*To the Editor:*—The observation of a patient during a cerebral angiospasm by Dr. Finesilver, as reported in THE JOURNAL, May 17, page 1608, is interesting, but is incomplete; and the conclusion, that "the whole picture is that of cerebral angiospasm of the vessels of the right side of the brain" is not justified by the facts stated. Is one justified in subscribing to the theory of angiospasm without giving due consideration to the fact that maintenance of the cerebral circulation is dependent on a normal circulating medium at an effective pressure and rate of flow in normal vessels? Why assume that the phenomena observed were caused by a spasm when it was observed that "the heart, while regular before, now showed many extrasystoles; it was feeble, and the rate was 84 a minute"? The systolic pressure before, during and after the attack is not reported.

WILLIAM H. HOLMES, M.D., Chicago.

### LIQUID AIR FOR POISON OAK DERMATITIS

*To the Editor:*—I have been using liquid air as a curative agent for poison oak dermatitis for some time. I find but one reference to the application of liquid air to poison oak dermatitis in the literature in twenty-five years. I have in preparation an article for your journal which I will forward in the near future.

The curative powers of liquid air in poison oak dermatitis were rediscovered accidentally by a Mr. G. F. Nelson, mechanician in the department of chemistry of the University of California, who was himself suffering from poison oak dermatitis and was at the same time making liquid air. Since then he has used it on students and employees of the chemistry department of the University of California with similar remarkable results.

Since this has come to my attention, I have used it at the University of California Infirmary and kept a record of between thirty and fifty acute cases of poison oak dermatitis, and can say that the itching is immediately allayed and the process of repair starts within two or three hours from the application of the liquid air. Usually only one application is necessary on any new spot of dermatitis. The liquid air will not prevent the spread.

WILLIAM GOODRICKE DONALD, M.D., Berkeley, Calif.
Acting University Physician.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### SIPPING OR DRINKING MILK

*To the Editor:*—Every once in a while we hear and read that milk should be sipped, not drunk like water. Even the ads tell the same story. The advertisement of one firm states that straws "prevent gulping, and thereby aid digestion." Hawk and others have shown that milk, when sipped, forms a large curd in the stomach. In my lectures, I say that milk should be taken like water. Please let us know what's what, and why.

A. P. Sy, Buffalo.

ANSWER.—Except in cases of patients with marked impairment of digestion, patients who should take all types of food slowly, the question of sipping milk through a straw or drinking it directly from a glass, like water, is one of esthetics rather than dietetics. One can drink milk as slowly without a straw as with a straw. Unless there is a considerable quantity of gastric juice in the stomach to begin with, there will be no appreciable curdling of the milk started until all the glass of milk has reached the stomach, even when taken through a straw. In any event, the size or the consistency of the precipitated casein is of no practical significance to the individual whose stomach is any kind of a "going concern."

When the infant, human or lower mammal, takes his milk from the teat, this is analogous to sipping milk through a straw. But every farmer knows that the calf taken away from its mother and allowed to gulp its pail of milk as fast as he can get it down does practically as well as the calf left with the mother, provided he gets enough good milk. It must also be remembered, in these days of straws, that millions of people take their milk without straws and "get away with it." This will probably hold unless extensive advertisement works the straw sipping process into our conditional reflexes.

Patients with digestive troubles may take their milk through a straw, if this is the only way to induce them to take it slowly. Others may take their milk in any way they like—and plenty of it.

### FAT CONTENT OF BLOOD IN FEVER

*To the Editor:*—What is the effect of fever on the fat content of the blood?

W. R. M.

ANSWER.—The lipoids in twenty-five samples of pathologic blood were determined by Bloor, who found the "fat" content increased in fifteen and decreased in two. None of the diseases represented in this list were febrile, however, and there seems to be no reference to research on the fat in blood from the standpoint of fever alone. Bloor's work (The Distribution of the Lipoids ["Fat"] in Human Blood, *J. Biol. Chem.* **25**:577 [July] 1916) is a study of the lipoids in normal blood, and in such conditions as diabetes, nephritis, asthma, myocarditis, goiter, mitral stenosis, anemia, syphilis and carcinoma.

### KOTTMAN'S TEST FOR HYPERTHYROIDISM — EPSTEIN'S BLOOD SUGAR METHOD — RUBBER GLOVE SOLUTION

*To the Editor:*—1. Please describe the technic of Kottman's test for hyperthyroidism, mentioned in THE JOURNAL, April 19, p. 1298. 2. What is the technic of Epstein's method for estimation of blood sugar? This test is not mentioned in Stitt's work; is it considered sufficiently accurate for everyday use? 3. Please give the name and address of the firm marketing a "rubber glove solution" into which a surgeon may dip his hands as a substitute for wearing gloves. I have seen this used in a Montreal hospital, where it was considered quite satisfactory. If such an article is not on the market, could you suggest a formula? The one that I saw smelled strongly of banana oil or amyl acetate.

H. W. C., M.D., Eldridge, Calif.

ANSWER.—1. To 1 c.c. of clear serum from blood drawn before a meal, 0.25 c.c. of 0.5 per cent. potassium iodid is added, and then 0.3 c.c. of 0.5 per cent. silver nitrate; after gentle mixing, the mixture is exposed five minutes to a 500 watt Mazda lamp at a distance of 25 cm.; 0.5 c.c. of 0.25 per cent. solution of hydroquinone is added, and the color changes are noted. A dark room is not absolutely necessary. A room with diffused light will not interfere with accurate results. The serum must be fresh and free from hemoglobin, and the reagents must be freshly prepared and accurately measured. The color reaction, after the addition of the hydroquinone, varies with different specimens. Saunders found that in normal specimens the color changed in about five minutes; in a case of hyperthyroidism, the color persisted for a considerable time, while in a case of hypothyroidism the color changed very rapidly. The reagents and specimens should be kept at ordinary room temperature for at least twenty minutes, to insure uniformity before the test is performed.

2. Details of the technic of Epstein's method for the estimation of blood sugar were published in THE JOURNAL, Nov. 7, 1914, p. 1667, in an article by the author. If one is unable to consult the original article, a copy will be made on request at 50 cents a column of JOURNAL type.

3. There is no rubber glove solution on the market that can be substituted for rubber gloves for surgical operations.

### STAINING SOLUTION FOR LABORATORY TABLES

*To the Editor:*—We are interested in the formula of copper sulphate solution used in staining laboratory tables, which finally gives a dull black finish. If I remember rightly, about twelve or fourteen years ago THE JOURNAL published some data.

A. S. WOLF, New York.

ANSWER.—As considerable time has elapsed since the publication of the formula for an ebonizing preparation to render laboratory tables resistant to staining or corroding chemical reagents, it is here repeated:

| | |
|---|---|
| **Solution A:** | |
| Copper sulphate and potassium chlorate, each..... | 125 gm. |
| Water ..... | 1,000 gm. |
| Boil till salts are dissolved. | |
| **Solution B:** | |
| Anilin hydrochlorid ..... | 150 gm. |
| Water ..... | 1,000 gm. |
| or: | |
| Anilin ..... | 120 gm. |
| Hydrochloric acid ..... | 180 gm. |
| Water ..... | 1,000 gm. |

Two coats of Solution A are applied while hot, the second as soon as the first has dried. Two coats of Solution B are applied, and the wood is allowed to dry thoroughly. Next a coat of raw linseed oil is rubbed in by means of a cloth to give a polish. In the treatment with the oil, the deep black color is partially brought out, but this does not uniformly appear until the table has been thoroughly washed with hot soapsuds. The latter treatment removes superfluous chemicals. To keep the table in condition, it is said to be necessary only to wash off occasionally with soap and water and then to rub with boiled linseed oil. The quantities given are sufficient for ten square yards of surface.

### REGISTRATION AREA

*To the Editor:*—Kindly give me some information about the "Registration Area," or refer me to where I can find out. From the enclosed clipping (from the New York *Times*) it appears that Chicago and St. Louis are not in the "area," which seems incredible.

F. T. WRIGHT, M.D., Douglas, Ariz.

ANSWER.—The Bureau of Census, Washington, D. C., advises that a state is admitted to the birth or the death registration area when it has a satisfactory birth or death registration law, and tests by the United States Bureau of the Census show that at least 90 per cent. of all births and deaths are registered.

A city may be admitted to the death registration area independent of the state in which the city is located, but not to the birth registration area; the sole unit of the birth registration area is the state.

Illinois, including Chicago, is in both the birth and the death registration area. Missouri is in the death registration, and St. Louis likewise. Missouri is not in the birth registration area, but is under observation with a view to admission. The Missouri birth registration law is satisfactory, but it has not been in force long enough to bring actual registration up to the required 90 per cent. Since Missouri is not in the birth registration area, St. Louis is not and cannot be, no matter how satisfactory the enforcement of the birth registration law is within the city.

### EFFECT OF QUININ ON THE EAR

*To the Editor:*—I was given 60 grains of quinin sulphate in the course of twelve hours by mouth by a neighboring physician about ten days ago, when I had pneumonia. I lost my hearing completely, but it has since come back almost entirely, although I am troubled with a roaring, or sense of fulness, in my ears. I have noticed in Forchheimer's Therapeusis, in an article by Henry L. Elsner, that large doses are used, but nothing is said about how to relieve a condition such as has resulted in my case. If you know of anything that will be of aid to me, I will certainly appreciate the information. If there is nothing to do, do you think that the condition will clear up with time?

B. W. KENDALL, M.D., Lillybrook, W. Va.

ANSWER.—It is well known that certain drugs, especially quinin, are prone to affect the auditory nerve, which is one of the most vulnerable of the cranial nerves. In some cases, even 0.06 or 0.12 gm. (1 or 2 grains) of quinin have been known to produce intense tinnitus aurium. At times, marked impairment of hearing has occurred; and, while this is usually transient, it is possible to have a permanent defect in hearing. For this reason, some physicians hesitate to prescribe quinin in any condition. Of course, in malaria, in which quinin is a specific, it may be necessary to give the drug; but in most conditions in which antipyretics are indicated, other drugs will answer the purpose without endangering the ears. Tinnitus is sometimes permanent. In order to relieve the patient, it is customary to produce active elimination by means of saline cathartics and the drinking of much water. It is advisable to use bromids, especially the sodium salt, in 0.6 gm. (10 grain) doses three or four times a day, with plenty of water. Usually this medication will relieve the noises; but, as before stated, some cases are quite intractable.

### IS OBSTETRICS MAJOR OR MINOR SURGERY?

*To the Editor:*—Please advise me as to whether the handling of confinement cases or obstetrics is major or minor surgery. Dorland's medical dictionary defines obstetrics as that branch of surgery which deals with pregnancy and labor, and minor surgery as that type of surgery such as bandaging and application of splints.

A. J. WILLIAMS, M.D., Waukesha, Wis.

ANSWER.—Medical literature, the curriculums of medical colleges, and medical practice acts almost universally recognize obstetrics as a distinct department of medicine. Obstetrics deals primarily with normal conditions; surgery deals altogether with abnormal conditions. In connection with obstetrics, abnormal conditions may arise, some of which call for surgical intervention; but the possibility of their occurrence hardly brings the entire field of obstetrics within the domain of surgery.

Such surgery as is incidental to obstetrics may be either major surgery or minor surgery, according to the circumstances and to established standards. Ohio, for instance, has defined major surgery as "the performance of those surgical operations attended by a mortality from the use of the knife or other surgical instruments." Most states, however, have laid down no such definitions. Under such circumstances, outside of a considerable number of operations that would fall obviously into one field or the other, the question as to whether a given operation or procedure is to be classed as major surgery or minor surgery is a matter of personal opinion.

### "A POSSIBLE SOURCE OF HAND CONTAMINATION"

*To the Editor:*—Relative to the letter with this title (THE JOURNAL, May 3, p. 1461), such an attachment to fixtures in toilet rooms in continental Europe has been in use, to my personal knowledge, for at least seventeen years. It consists of a lever operated by the foot.

CHARLES W. HEITZMAN, M.D., Muskogee, Okla.

# Medical Education, Registration and Hospital Service

## COMING EXAMINATIONS

ALABAMA: Montgomery, July 8. Chairman, Dr. S. W. Welch, Montgomery.

CALIFORNIA: San Francisco, July 7-10. Sec., Dr. Charles B. Pinkham, 908 Forum Bldg., Sacramento.

COLORADO: Denver, July 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Hartford, July 8-9. Sec., Regular Board, Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, July 8. Sec., Homeopathic Board, Dr. Edwin C. N. Hall, 82 Grand Ave., New Haven; Sec., Eclectic Board, Dr. James E. Hair, 730 State St., New Haven.

DELAWARE: Wilmington, June 17. Sec., Medical Council, Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

DISTRICT OF COLUMBIA: Washington, July 8. Sec., Dr. Edgar P. Copeland, Apt. 104, Stoneleigh Court, Washington.

FLORIDA: Ocala, June 16-17. Sec., Dr. W. M. Rowlett, Citizens Bank Building, Tampa.

GEORGIA: Atlanta and Augusta, June 4-6. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Chicago, June 24-27. Supt. of Regis., Mr. V. C. Michels, Springfield.

INDIANA: Indianapolis, July 8-10. Sec., Dr. William T. Gott, No. 333 State House, Indianapolis.

KANSAS: Topeka, June 17. Sec., Dr. A. S. Ross, Sabetha.

KENTUCKY: Louisville, June 9. Sec., Dr. A. T. McCormack, 532 W. Main Street, Louisville.

LOUISIANA: New Orleans, June 12-14. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MARYLAND: Baltimore, June 17-20. Sec., Reg. Bd., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore; Sec., Homeo. Bd., Dr. E. H. Wilsey, Chesapeake City.

MICHIGAN: Ann Arbor, June 10-12; Detroit, June 16-18. Sec., Dr. B. D. Harison, 707 Stroh Bldg., Detroit.

MINNESOTA: Minneapolis, June 3-5. Sec., Dr. Thomas McDavitt, 535 Lowry Bldg., Minneapolis.

MISSISSIPPI: Jackson, June 17-18. Sec., Dr. W. S. Leathers, Jackson.

NATIONAL BOARD OF MEDICAL EXAMINERS: Written examinations in Class A Medical Schools. Parts I and II, June 19-21. Sec., Dr. John S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

NEBRASKA: Omaha, June 9-11. Supt., Dr. J. D. Case, Terminal Building, Lincoln.

NEW JERSEY: Trenton, June 17-18. Sec., Dr. Alexander MacAlister, State House, Trenton.

NORTH CAROLINA: Raleigh, June 23. Sec., Dr. Kemp P. B. Bonner, Raleigh.

NORTH DAKOTA: Grand Forks, July 1-4. Sec., Dr. G. M. Williamson, Grand Forks.

OHIO: Columbus, June 3-6, 1924. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

OKLAHOMA: Oklahoma City, July 8-9. Sec., Dr. J. M. Byrum, Shawnee.

OREGON: Portland, July 1-3. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 8-12. Sec., Dr. George Becht, Harrisburg.

RHODE ISLAND: Providence, July 4-5. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH CAROLINA: Columbia, June 24. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Sioux Falls, July 15. Director, Division of Medical Licensure, Dr. H. R. Kenaston, Bonesteel.

TENNESSEE: Memphis, June 13-14. Sec., Dr. A. B. DeLoach, 434 Madison Ave. Bldg., Memphis.

TEXAS: Austin, June 17-19. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Building, Dallas.

VERMONT: Burlington, June 25-27. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 17-20. Sec., Dr. J. W. Preston, 720 Anchor Building, Roanoke.

WASHINGTON: Olympia, July 8. Sec., Mr. Wm. Melville, Olympia.

WISCONSIN: Milwaukee, June 24-26. Sec., Dr. J. M. Dodd, 220 E. Second Street, Ashland.

WYOMING: Casper, June 5-11. Sec., Dr. J. D. Shingle, Citizens Bank Bldg., Cheyenne.

### Missouri January Reciprocity Report

Dr. Cortez F. Enloe, secretary, Missouri State Board of Health, reports that five candidates were licensed by reciprocity at the meeting held at Jefferson City, Jan. 29, 1924. The following colleges were represented:

| College | LICENSED BY RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| Northwestern University | | (1910) | Illinois |
| State University of Iowa College of Medicine | | (1904) | Iowa |
| University of Kansas | | (1922) | Kansas |
| Harvard University | | (1915) | Illinois |
| University of Minnesota | | (1923) | Minnesota |

### Washington January Reciprocity Report

Mr. William Melville, secretary, Washington Department of Licenses, reports that forty-two candidates, including one undergraduate, were licensed by reciprocity and two by endorsement of credentials, at the meeting held at Olympia, Jan. 8, 1924. The following colleges were represented:

| College | LICENSED BY RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| University of Colorado | | (1913) | S. Dakota |
| George Washington University | | (1905) | Dist. Colum. |
| Bennett College of Eclectic Medicine and Surgery | | (1882) (1896) | Idaho Wisconsin |
| Bennett Medical College | | (1909) | Nebraska |
| American College of Medicine and Surgery | | (1906) | Alaska |
| Chicago College of Medicine and Surgery | | (1914) (1916), (1917) | S. Dakota Illinois |
| Hahnemann Medical College and Hospital of Chicago | | (1903) (1913) | Wisconsin Montana |
| Loyola University | | (1919) | Illinois |
| Northwestern University | | (1916), (1923) | Illinois |
| College of Physicians and Surgeons, Chicago | | (1910) | S. Dakota |
| State University of Iowa College of Medicine | | (1909) | N. Dakota |
| State Univ. of Iowa College of Homeopathic Med. | | (1906) | Iowa |
| Sioux City College of Medicine | | (1902) | Iowa |
| University of Kansas | | (1918) | Kansas |
| Hospital College of Medicine, Louisville | | (1905), (1906) | Oklahoma |
| University of Louisville | | (1910) Indiana, (1913) | Kentucky |
| Johns Hopkins University | | (1921) | N. Dakota |
| University of Michigan Med. School | | (1903) Idaho, (1921) | Michigan |
| University of Minnesota | | (1913), (1914) | Minnesota |
| Kansas City Medical College | | (1891) | Montana |
| St. Louis College of Physicians and Surgeons | | (1908) | Illinois |
| Columbia University | | (1896) Kentucky, (1919) | Wisconsin |
| Cleveland Medical College | | (1891) | Ohio |
| Starling Medical College | | (1894) | Ohio |
| Toledo Medical College | | (1910) | Ohio |
| University of Oregon | | (1915) | Oregon |
| Memphis Hospital Medical College | | (1901) (1906) Louisiana, (1907) Mississippi | Oklahoma |
| University of Nashville | | (1907) | Oklahoma |
| University of Toronto | | (1908) | N. Dakota |
| Undergraduate | | | W. Virginia |

| College | ENDORSEMENT OF CREDENTIALS | Year Grad. | Endorsement with |
|---|---|---|---|
| University of Nebraska | | (1921) | N. B. M. Ex. |
| University of Pennsylvania | | (1922) | N. B. M. Ex. |

# Book Notices

THE ELEMENTS OF VITAL STATISTICS IN THEIR BEARING ON SOCIAL AND PUBLIC HEALTH PROBLEMS. By Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P., Lecturer on Public Health Administration at the School of Hygiene and Public Health, Johns Hopkins University. Second edition. Cloth. Price, $7.50. Pp. 623. New York: D. Appleton & Co., 1924.

The recent revision of Sir Arthur Newsholme's book will be a welcome addition to the libraries of all interested in public health. It has been entirely rewritten by the author, and a great deal of new matter introduced. It is especially valuable for American readers, as data from our country and from England are made use of with equal freedom. Though intended, in the first instance, for health officers and those engaged in the work of collecting and compiling vital statistics, the author, even in the first edition, introduced considerable discussion of current statistical problems of interest to many others. The present edition has been greatly enlarged, particularly as to this portion of the subject. Many matters of interest to medical men are discussed in considerable detail, such as the decrease in tuberculosis, the prevalence of venereal disease, the use of alcoholic beverages, and the apparent increase of cancer and appendicitis. The author still believes that the institutional treatment of advanced pulmonary tuberculosis is of great importance in the decrease of this disease, though he seems to have modified his former views as to its supreme importance. Though recognizing the part played by poor nutrition in the development of the disease, he thinks that this is often overestimated, and gives statistical evidence for this conclusion. The influence of crowding, too, has perhaps been exaggerated. Stress is placed on the partial immunizing effect of repeated small doses of tubercle bacilli in early life. Under the careless personal hygiene of a generation ago, large doses of tubercle bacilli killed. With less chances for infection today, smaller doses immunize. Many years ago, Sir Arthur showed that the apparently great increase of cancer is, to a large extent, apparent only. He here reviews this evidence and suggests that it may well be that some forms of cancer may be increasing though others are not. Appendicitis, on the other hand, probably shows a real increase. In the discussion of these and a great many other practical medical problems, the author reviews the facts in a safe and sane manner, and with entire

fairness, and is constantly calling attention to fallacies and statistical pitfalls. It is the careful treatment of these problems in an honest and simple manner that makes this excellent and reliable book so useful for physicians and social workers. It would mean much if every writer of popular health literature would keep a copy on his desk and use it. Frequent attention is called to the fact that the value of vital statistics depends on the relative accuracy of the original returns. The best way to improve vital statistics is to raise the standards of medical knowledge. Better statistics, and hence a better foundation for progress, is one of the fruits of the campaign in this country for better medical training. Improvement in mortality returns is already apparent.

DIE SYPHILIS. Kurzes Lehrbuch der gesamten Syphilis, mit besonderer Berücksichtigung der inneren Organe. Herausgegeben von E. Meirowsky, und Felix Pinkus. Cloth. Price, $6.50. Pp. 572, with 79 illustrations. Berlin: Julius Springer, 1923.

HANDBUCH DER SERODIAGNOSE DER SYPHILIS. Von Professor Dr. C. Bruck, Leiter der dermatolog. Abteilung des städt. krankenhauses Altona, Priv.-Doz. Dr. E. Jacobsthal, Leiter der serolog. Abteilg. des allgem. Krankenhauses Hamburg-St. Georg, Priv.-Doz. Dr. V. Kafka, Leiter der serologischen Abteilung der psychiatr. Univ.-Klinik u. Staatskrankenanstalt Hamburg-Friedichsberg, und Oberarzt Dr. J. Zeissler, Leiter der serologischen Abteilung des städt. Krankenhauses Altona. Herausgegeben von Carl Bruck. Second edition. Paper. Price, $7.20. Pp. 546, with 46 illustrations. Berlin: Julius Springer, 1924.

These two books are valuable additions to the literature of syphilis. The Meirowsky-Pinkus work, in thorough and competent manner, presents syphilis in all its manifestations in the organs and tissues of the body, and will be read with profit and stimulus by any physician who deals with this disease and attempts to treat it. The illustrations are instructive. The subject index seems complete. Bruck's Serodiagnosis of Syphilis is the fullest presentation we have of this subject. The present edition is an elaboration of a monograph with the same title by Bruck in 1909. Bruck, who made the original tests on which was based the first publication by Wassermann, Neisser and Bruck on a serodiagnostic reaction in syphilis, which became known and used everywhere as the Wassermann test, writes the parts on the development of serodiagnosis in syphilis, on the nature of complement fixation in syphilis, and on the clinical value of serodiagnosis in syphilis; Zeissler writes the part on the technic of complement fixation; Jacobsthal on the numerous precipitation and flocculation tests; and Kafke the parts on the arachnoid fluid and on the luetin reaction. This book will be of signal value to all workers, practical and investigative, in serodiagnosis. Extensive and seemingly exhaustive bibliographies are given at the end of each part; in fact, more than 100 pages are occupied with references, and it is a matter of regret that a uniform style of giving the references, with year, volume and page in case of journal articles, was not followed throughout. The American work seems to be given adequate credit, and the innumerable different tests and variations of tests brought forward in the field of serodiagnosis of syphilis are considered fully enough, and fairly, from both the practical and the theoretical point of view. The summarizing statements on page 206 of what is regarded as at present the most perfect procedure for complement fixation as a test for syphilis are recommended to the careful consideration of workers in this field.

LE CANCER THYROIDIEN. Par Léon Bérard, Professeur de clinique chirurgicale à l'Université de Lyon, et Charles Dunet, Professeur agrégé à la Faculté de médecine de l'Université de Lyon. Paper. Price, 40 francs net. Pp. 585, with 149 illustrations. Paris: Gaston Doin, 1924.

This book is divided into three parts. The first part deals with the historical development of our knowledge of thyroid cancer, known only since 1750, with embryologic, anatomic and physiologic considerations, and with thyroid cancer in animals. In the second part, the etiology, pathologic anatomy, physiology and biochemistry of thyroid cancer are discussed. The third part is devoted to the clinical aspects of thyroid cancer—symptoms and clinical forms; acute, woody, latent thyroid cancer; cancer in aberrant thyroid tissue; diagnosis, and treatment. The illustrations are instructive, particularly those of the microscopic structure. The authors have had the chance to study a vast amount of illustrative material, clinical and anatomic, from one of the most goitrous regions of France, and devote 167 pages to the gross and microscopic anatomy of thyroid cancer. Naturally, their observations support the idea that goiter predisposes to malignancy. The chapters on diagnosis and treatment also are of great practical interest and value. The presentation is clear and full; the teachings are reliable and sound. It is a valuable monograph that ought to be studied by all physicians and surgeons who have to deal with goiters and other diseases of the thyroids, and cancer of the thyroid merits more attention than it seems to be receiving in this country. It is regrettable that the book is not indexed, and it is perhaps true that sarcoma of the thyroid is not presented fully enough.

L'ÉTAT ACTUEL DU PROBLÈME DU CANCER. Par Gustave Roussy, Professeur agrégé à la Faculté de médecine de Paris. Paper. Price, 10 francs. Pp. 192, with 20 illustrations. Paris: Gauthier-Villars et Cie, 1924.

LES CANCERS. Par E. Duroux, Professeur agrégé à la Faculté de médecine de Lyon. Paper. Price, 16 francs. Pp. 267, with 7 illustrations. Paris: Masson et Cie, 1923.

These two books deal with cancer in a semipopular manner. Roussy's book merits much praise; it will be read with profit, not only by physicians, biologists and public health officials, but also by all intelligent persons who wish to have a safe and solid general knowledge of cancer. In only one particular does this book fall short: in the rather superficial discussion of heredity in cancer it is not mentioned at all that hereditary influences operate in opposite directions, namely, in breeding in cancer and in breeding out cancer, and the breeding out quality is the dominating. Duroux's book must be condemned because it overemphasizes the rôle of syphilis in cancer. According to Duroux, heredity in cancer simply means congenital syphilis and requires iodids. He also holds that the origin of cancer is due to a spirillar infection.

LES FERMENTS DES LEUCOCYTES EN PHYSIOLOGIE, PATHOLOGIE ET THÉRAPEUTIQUE GÉNÉRALES. Par Noël Fiessinger. Préface de M. le Professeur Chauffard. Paper. Price, 16 francs. Pp. 237, with illustrations. Paris: Masson et Cie, 1923.

This book deals in an interesting manner with the ferments of the leukocytes. There are eight chapters, six of which are devoted to the various groups of ferments in leukocytes; the seventh chapter considers the rôle of leukocytic ferments in autolysis, immunity, tissue growth and diagnosis; and the eighth chapter discusses the leukocytic ferments in therapy, but it is evident that as yet no practical results have been obtained. At the end of each chapter is a helpful bibliography. The book will be of interest and value to all students of the leukocytes.

ENTRETIENS DERMATOLOGIQUES À L'ÉCOLE LAILLER (HÔPITAL SAINT-LOUIS). Série nouvelle, deuxième volume. Maladies du cuir chevelu. Par Dr. R. Sabouraud, Laboratoire municipal de la ville de Paris à l'Hôpital Saint-Louis. Paper. Price, 20 francs, net. Pp. 272, with illustrations. Paris: Masson et Cie, 1924.

The second volume of Sabouraud's lectures deals with diseases of the scalp. The author is particularly well qualified to discuss this subject, and the reader interested in this special subject will find his detailed discussions exceedingly interesting. The consideration of alopecia areata is particularly detailed, and the significance of its relationship to other diseases, especially syphilis, is very well presented. Nearly half the book is occupied with a discussion of the various aspects of this disease.

ENFERMEDADES DEL HÍGADO Y DEL PÁNCREAS. Por Luis Urrutia. Paper. Price, 30 pesetas. Pp. 608, with 55 illustrations. Madrid: Calpe, 1923.

The Spanish gastro-enterologist Urrutia brings to a close his trilogy of gastro-intestinal diseases with this volume devoted to the liver and pancreas. Urrutia takes up the different examination methods and tests, and then discusses the various conditions that may affect the biliary system. If one were to single out a chapter, first place should be given to the minute discussion of gallstones. The one part that seems inadequate, especially in these insulin days, is the brief and rather inconsequential reference to diabetes. A pleasant feature of the book is the obvious familiarity with English and American literature, too often missing among foreign authors.

## Miscellany

### PRIVATE HOSPITALS AS PUBLIC AGENCIES

**Right of Hospital to Exclude Physicians Generally from Use of Hospital Accommodations Denied**

A decision defining the rights of certain classes of private hospitals in the state of New York with respect to the exclusion of physicians and surgeons from access to their wards for the purpose of treating patients has recently been rendered by Judge Alonzo G. Hinkley of Buffalo, justice of the Supreme Court. The decision was rendered in a suit brought by Dr. Benjamin Van Campen against the Olean (N. Y.) General Hospital. The Olean General Hospital, sometimes known as the Higgins Memorial Hospital, affords the only hospital accommodations in the city of Olean, except such as are afforded by a small private sanatorium. The hospital is organized as a "domestic membership corporation," membership being open to physicians and laity alike and conferring no privilege except that of voting for directors. The hospital had been accustomed to select a visiting staff, the members of which were granted the privilege of using the hospital and its equipment for the accommodation of their patients. The plaintiff had been a member of the visiting staff for some time prior to Dec. 19, 1923, when he was notified by the board of directors of the hospital that he had been dropped. Thereupon he brought suit.

In deciding the case, the court said:

> It is apparent that it is neither a strictly public institution nor is it a strictly private institution. Yet, except that it is privately owned and privately controlled, it is in every respect a public institution.
>
> It is public in that it is subject to state supervision by the state board of charities and subject to visitation as to financial matters by this court; it is established and partly maintained by public subscription; it seeks and receives funds of the municipality raised by taxation; it is exempt from taxation; it is exempt from liability for negligence of its nurses and physicians, and it is open to the public generally. The actuating cause for its exemption from taxation, its escape from liability for negligence, its receipt of public funds, its public subscriptions and the other causes which go to make it a public institution, must yield in return a reciprocal obligation to the public at large. A public charitable hospital, therefore, must serve, indifferently, all who may require its service, and should not be permitted to arbitrarily close its doors, as its mere whim may dictate, to persons who are willing to pay and to conform to its reasonable rules.
>
> . . . . . .
>
> In the instant case, if one of plaintiff's patients, who was a large taxpayer, was injured upon one of the streets of Olean, and conveyed by ambulance to defendant's hospital, he would be denied the advantage of plaintiff's skill and learning, when confidence in such skill and learning might be one of the greatest aids to recovery. Having been involuntarily assessed for the maintenance of the hospital and that assessment increased by its exemption from taxation, and being a member of the corporation and having voluntarily contributed to the drives for funds, the directors, unless for good cause, should not be permitted to deny him entrance to the hospital, nor to say in whose hands his life should rest.

Basing its decision on the supposedly inherent power of the court as a court of equity to deal justly, not as a matter of so-called substantial justice between the particular parties to the transaction, "but in the enunciation of a principle of justice for all similar institutions and individuals like circumstanced and wherever situated," the court directed that judgment be entered "decreeing to plaintiff the right to operate upon and care for such of his patients as desire treatment in defendant's hospital, subject to all reasonable rules and regulations." It declined, however, to require the hospital to reappoint the plaintiff to its visiting staff. The importance of this decision is manifest, and the outcome on appeal will be awaited with interest.

### BROKEN NEEDLES AND MALPRACTICE

For the physician or surgeon who may be so unfortunate as to lose a needle in the body of a patient, the decision in the case of *Mandelbaum* v. *Weil*, recently decided by the Appellate Division of the Supreme Court of New York, affords instruction. The patient sued for damages on account of alleged injury in the course of a tonsillectomy. Three faults were alleged against the physician-defendant: failure to use a general anesthetic; failure to discover that a needle had broken, and failure to make efforts to extract the needle before proceeding with the operation. No blame was attributed to the defendant, however, on account of the breaking of the needle. The defendant justified his choice of the anesthetic by showing that in the community where the case arose, local rather than general anesthetics were commonly used in removing the tonsils of adults. That the defendant knew the needle had broken was demonstrated by proving that after his patient returned home and had an opportunity to recuperate through rest and sleep, he called on her on his own initiative, told her of the accident, and at his own expense procured the services of a physician to remove, if possible, the part of the needle remaining in the tissues. After the accident and before proceeding with the operation, the defendant tried to locate and extract the missing part of the needle, but was unable to do so; but in the defendant's judgment, the patient's condition made it inexpedient to tell her at once of what had happened, and the presence of the needle in the tissues did not justify abandoning the operation. The wisdom of the physician's course in not prolonging the search for the needle before completing the operation was shown by after-events, for even after the missing part had been located by the use of roentgen rays, efforts to remove it were unsuccessful. In the trial court a judgment was awarded against the defendant, on the verdict of a jury, for $1,623.10. The Supreme Court, however, on appeal, unanimously reversed the judgment, and dismissed the complaint, with costs.

## Medicolegal

### Corn Liquor Called "Poison"—Crazed by "Dope"

*(Brown v. State (Ala.), 98 So. R. 653. Bennett v. State (Ark.), 257 S. W. R. 372)*

The Court of Appeals of Alabama, in affirming a judgment of conviction of defendant Brown of having violated the prohibition law, holds that there was no error in permitting the solicitor to designate the corn whisky found in the defendant's home as "poison." The court says that the term "poison" is the subject of numerous definitions, a number of which rendered unavailing the contention that the trial court had erred in its ruling. Moreover, courts are presumed to know that which is generally known, and it does not require unusual investigation or research, in the present era, to ascertain the fact that corn liquor is regarded by an appreciable precentage of the population of this vast domain as being exceedingly deleterious, noxious, pernicious, hurtful and destructive. This court is presumed also to know that there is a difference of opinion on this and other multitudinous subjects pertaining to the resultant effects of the Eighteenth Amendment to the federal Constitution. And, of course, there are different grades of corn liquor, this court presumes. But the law knows no distinction; nor does it recognize the difference between the good (if such there be) and the bad and the noxious sort. Hence this court is not in a position to offer balm to the defendant by putting the trial court to error for permitting the solicitor in his argument to cast reflection on the grade of corn liquor admitted by the defendant to have been in his possession in large quantities.

The Supreme Court of Arkansas, in affirming a judgment of conviction of defendant Bennett of involuntary manslaughter, holds that there was no error in the trial court's refusal to instruct the jury that:

> If you find from the evidence in this case that the defendant drank what he thought was whisky but the effects on the defendant were of such nature as to paralyze his mind and were contrary to the effect of whisky, and that he was crazed by said dope to that extent that he did not know what he was doing, then and in that event the defendant would not be guilty of the crime charged, even though you find he did, while operating his automobile, strike and knock the deceased under a wagon which ran over and killed him.

The supreme court says that the testimony on behalf of the defendant tended to prove that he was unconscious at the time as the result of voluntarily drinking what he thought was whisky. The testimony of the defendant showed

that he "voluntarily drank the dope" which produced his temporarily besotted and unconscious condition. No effort was made to prove that he at the time of the killing was afflicted with any disease of the mind, either permanent, temporary or periodical, such as delirium tremens, mania a potu or dipsomania. It appeared that the killing was the result of reckless, wanton and careless driving of his automobile while he was unconscious as the result of beastly intoxication caused by his own voluntary drinking. Voluntary drunkenness was no excuse for the crime. The court did not err in refusing his prayer for instruction.

### Criminal Production of Miscarriage—Manslaughter

*(Foster v. State (Wis.), 196 N. W. R. 233)*

The Supreme Court of Wisconsin, in reversing a judgment of conviction of defendant Foster of having feloniously produced the death of the child of a woman advanced in pregnancy from six to eight weeks, says that neither in popular nor in scientific language is the embryo in its early stages called a human being. Popularly it is regarded as such, for some purposes, only after it has become "quick," which does not occur till four or five months of pregnancy have elapsed. It is obvious that no death of a child can be produced where there is no living child. If pregnancy has not advanced sufficiently so that there is a living child—that is, a quick child—then felonious destruction of the fetus constitutes only a criminal miscarriage. In a strictly scientific and physiologic sense, there is life in an embryo from the time of conception, and in such sense there is also life in the male and female elements that unite to form the embryo. But the law, for obvious reasons, cannot in its classifications follow the latest or ultimate declarations of science. It must for purposes of practical efficiency proceed on more everyday and popular conceptions, especially as to definitions of crimes that are *malum in se* (classed as evil in themselves). These must be of such a nature that the ordinary normal adult knows it is morally wrong to commit them. That it should be less of an offense to destroy an embryo in a stage in which human life in its common acceptance has not yet begun than to destroy a quick child is a conclusion that commends itself to most men. The legislature saw fit to enact Section 4583 of the Statutes of Wisconsin of 1923, a law making it an offense to produce a criminal miscarriage. It also made it a graver offense by Section 4352 to produce a criminal abortion resulting in the death of a quick child or its mother. Both the quick child and the mother are human beings; hence, unlawfully to kill either constitutes manslaughter. A two months' embryo is not a human being in the eye of the law, and therefore its destruction constitutes an offense against morality and not against lives and persons. The defendant should have been prosecuted under the provisions of Section 4583. The evidence did not sustain a conviction under Section 4352. Therefore the judgment of conviction is reversed and the cause remanded for further proceedings according to law.

### No Competent Evidence of Negligence Introduced

*(Saylor v. Brady (Kan.), 220 Pac. R. 1047)*

The Supreme Court of Kansas, in affirming a judgment in favor of the defendant, holds that, in an action for malpractice, in which the plaintiff offered no competent evidence of negligence on the part of the defendant, the trial court properly sustained a demurrer to the evidence. The court says that the plaintiff in this case offered no expert evidence to show negligence. It is the general rule in malpractice cases that the negligence in the treatment, which it is contended caused the injury, must be shown by physicians or by medical witnesses called as experts. The claim of negligence here made was that in performing a surgical operation on the plaintiff the defendant made the incision too long and in an improper place; that he used defective catgut in sewing up the wound, and failed to use proper means to cause the wound to heal; also, that he failed to give proper advice and proper treatment after the operation. Obviously, to entitle the plaintiff to recover a judgment for damages it was necessary for her to offer testimony by some witnesses who knew something of medical science, and that means a physician or surgeon, tending to show what length of incision was proper in the operation performed, where it should be made, what were the proper means to use to cause the wound to heal, or what constituted proper advice or treatment after the operation. The medical witness called by the plaintiff testified that he had no judgment as to what was the proper treatment in the plaintiff's case, and could form no opinion thereon without knowing the circumstances of the case, such as the nature of the operation performed by the defendant on her, the condition of the wound, and the condition of the patient. These were not stated to him in a hypothetical question, and his judgment asked thereon, nor was the negligence of the defendant shown in any way by any witness familiar with medical science. The plaintiff argued that after the operation, and especially after she left the hospital, the defendant did not visit her as frequently as he should have done, and did not give her proper advice and treatment. The same difficulty is found here as before discussed. There was no evidence by any one competent to testify on the subject as to the period of time visits should have been continued in the condition the plaintiff was then, nor what advice was proper to give under the circumstances.

The most favorable aspect in which to view the evidence offered in behalf of the plaintiff was that some of it tended to show an unsatisfactory result. There was evidence tending to show an imperfect healing of the wound, resulting in a "surgical hernia," which would perhaps necessitate a secondary operation to relieve the plaintiff; but there was no evidence that such an unsatisfactory result could have been prevented by different treatment than that given, or that the condition of the patient was such that the secondary operation would have been advisable any time soon after the major operation. In addition to that, the mere showing of an unsatisfactory or poor result is not sufficient to make a physician liable in damages.

The contract of a physician in the treatment of a patient, implied in law, is that the physician possesses the learning and skill ordinarily possessed by men of his profession in the community in which he practices, and that in the treatment of his patient he will use such learning and skill with ordinary diligence and care. When he does this he is not liable in damages, even though the results are not good.

### Damages for Illness from Chewing Snake in Tobacco

*(R. J. Reynolds Tobacco Co. v. Loftin (Miss.), 99 So. R. 13)*

The Supreme Court of Mississippi, Division B, says that this action was brought by plaintiff Loftin to recover damages for an illness alleged to have resulted from chewing a part of a plug of "Brown's Mule" chewing tobacco which had been manufactured by the defendant, and in which there was embedded the partially decomposed body of a small snake. The declaration was grounded on the negligence in the manufacture of the plug of tobacco. There was a verdict and judgment for $1,500. The court thinks that the testimony amply sustained the finding of liability, but that under the evidence as to the extent of the illness the verdict was grossly excessive, and that a verdict in excess of $500 should not be permitted to stand. It says that if the plaintiff would remit $1,000, judgment for $500 would be affirmed; otherwise the cause would be remanded for a trial on the question of damages only.

### Testimony as to Defendant Having Venereal Disease

*(Martinez v. State (Texas), 256 S. W. R. 289)*

The Court of Criminal Appeals of Texas holds, in this prosecution for statutory rape, wherein it was shown that the prosecutrix from some cause developed a severe case of gonorrhea, and physicians who examined the defendant's person when he was arrested testified that he was affected with the disease, that the fact that a physician examines a person under arrest and thereafter testifies to his discovery of a venereal disease is not violative of the rules against compelling one to give testimony against oneself.

# Society Proceedings

## COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, Chicago, June 9-13. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Association of Industrial Physicians and Surgeons, Chicago, June 9-10. Dr. A. G. Cranch, National Carbon Co., Cleveland, Sec'y.
American Dermatological Association, Minneapolis, Minn., June 5-7. Dr. Udo J. Wile, 211 East Huron Street, Ann Arbor, Mich., Secretary.
American Laryngological Association, Swampscott, Mass., June 2-4. Dr. George M. Coates, 1811 Spruce Street, Philadelphia, Secretary.
American Neurological Association, Philadelphia, June 5-7. Dr. Frederick Tilney, 870 Madison Avenue, New York, Secretary.
American Otological Society, Swampscott, Mass., June 3-5. Dr. Thomas J. Harris, 104 E. 40th Street, New York, Secretary.
American Pediatric Society, Pittsfield, Mass., June 5-7. Dr. H. C. Carpenter, 1805 Spruce Street, Philadelphia, Secretary.
American Proctologic Society, New York, June 23-25. Dr. Joseph F. Montague, 540 Park Avenue, New York, Secretary.
American Psychiatric Association, Atlantic City, June 3-6. Dr. C. Floyd Haviland, Drawer 18, Capitol Station, Albany, N. Y., Secretary.
American Radium Society, Chicago, June 9-10. Dr. Edwin C. Ernst, Humboldt Bldg., St. Louis, Secretary.
American Society of Clinical Pathologists, Rochester, Minn., June 5-7. Dr. Ward Burdick, 652 Metropolitan Building, Denver, Secretary.
American Society of Tropical Medicine, Chicago, June 9-10. Dr. B. H. Ranson, Bureau of Animal Industry, Washington, D. C., Secretary.
American Urological Association, Atlantic City, June 3-5. Dr. Homer G. Hamer, 723 Hume-Mansur Building, Indianapolis, Secretary.
Associated Anesthetists of the United States and Canada, Chicago, June 9-10. Dr. F. H. McMechan, Avon Lake, Ohio, Secretary.
Maine Medical Association, Portland, June 25-27. Dr. B. L. Bryant, 265 Hammond Street, Bangor, Secretary.
Massachusetts Medical Society, Boston, June 6-7. Dr. W. L. Burrage, 182 Walnut St., Brookline, Secretary.
Medical Library Association, Chicago, June 9-10. Dr. John Ruhrah, 11 East Chase St., Baltimore, Secretary.
Medical Women's National Association, Chicago, June 9-10. Dr. J. W. Fisher, Middlesex Hospital, Middletown, Conn., Secretary.
New Hampshire Medical Society, Manchester, June 24-25. Dr. D. E. Sullivan, 7 N. State Street, Concord, Secretary.
New Jersey, Medical Society of, Atlantic City, June 5-7. Dr. J. B. Morrison, 97 Halsey Street, Newark, Secretary.
Pacific Northwest Medical Association, Vancouver, B. C., June 26-28. Dr. F. Epplen, 422 Paulsen Building, Spokane, Wash., Secretary.
Radiological Society of North America, Chicago, June 6-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.
Rhode Island Medical Society, Providence, June 5. Dr. I. W. Leech, 369 Broad Street, Providence, Secretary.
Utah State Medical Association, Logan, June 19-21. Dr. William L. Rich, Boston Building, Salt Lake City, Secretary.
Wyoming State Medical Society, Cody, June 17-19. Dr. Earl Whedon, Sheridan, Secretary.

## ASSOCIATION OF AMERICAN PHYSICIANS

*Thirty-Ninth Annual Meeting, held in Atlantic City, N. J., May 6 and 7, 1924*

*(Continued from page 1726)*

### Syphilitic Aortic Insufficiency

DR. R. W. SCOTT, Cleveland: In syphilitic aortitis associated with mesaortitis there is commonly aortic insufficiency. We made clinical and pathologic studies on twenty-four patients, all but two of whom died while in the hospital. All had signs of aortic insufficiency, and all but one died of heart failure. The diagnosis was confirmed post mortem. Symptoms were noted from two weeks to three years before heart failure occurred. Rest in bed gave temporary relief. The patients were all well developed adults, with no previous heart condition. The course was rapid and progressive after signs of edema and breathlessness had set in. All patients, when first seen, had decompensation. There was pallor of the face, but no anemia. One third had a presystolic Flint murmur. Usually, there was a systolic and diastolic murmur in the third and fourth interspace. Sometimes a systolic thrill was noticed. In no instance was the aortic orifice found stenosed at necropsy. In every case there was syphilitic mesaortitis. There was single atheroma in four cases. In all cases there was hypertrophy of the heart, and thickening and dilatation of the left ventricle. The aortic ring was distorted, without actual narrowing, but insufficient. There was no disease of the other valves. There was no relation between the extent of the disease and the narrowing of the aorta. As to the cause of progressive heart failure in these cases: one fourth of the patients had coronary obstruction. Examination showed that if Nature could have sufficient time, there is a tendency to form a collateral circulation, but usually the cases are blocked off suddenly and have a suddenly fatal end.

#### DISCUSSION

DR. LEWIS A. CONNER, New York: I think that more aortic insufficiency in adult life is due to rheumatism than to syphilis, but we do not see these cases so much in hospital practice, as they are ambulatory.

DR. W. S. THAYER, Baltimore: The frequency of aortic insufficiency due to syphilis is true. I saw one case of aortic insufficiency after pneumonia, due to sudden tearing down of the two valves through a plaque situated in the junction. I believe that it was caused by stretching at the point of junction of the valves. This may occur with old syphilitic plaques.

DR. HARLOW BROOKS, New York: I was rather surprised at the high mortality in the cases studied. What treatment was used? I believe that antisyphilitic treatment is successful in a high percentage of cases. Another point is, Why did these patients die? I believe that they died from myocardial lesions or coronary lesions rather than from disease of the aorta itself.

DR. J. H. EYSTER, Madison, Wis.: In what percentage of cases was the blood Wassermann reaction positive, and in how many cases was arsphenamin used?

DR. JOSEPH PRATT, Boston: The percentage of syphilitic aortic insufficiency cases in the whole number of aortic insufficiency cases depends on the clientele and its source. I have analyzed the cases occurring in my own practice, and have found that they include 75 per cent. of aortic insufficiency due to rheumatism or to arteriosclerosis not due to syphilis. In the other 25 per cent., the Wassermann reaction was positive.

DR. ALEXANDER LAMBERT, New York: In Bellevue Hospital, for the last thirty years, the syphilitic type of aortic insufficiency has been much more frequent than other types —about 56 per cent. of all cases. I think that Dr. Scott is correct in his estimation. When the aortic valve is involved, one out of two is syphilitic.

DR. EMANUEL LIBMAN, New York: The figures will depend not only on the incidence of syphilis in a given clientele, but also on that of rheumatic fever. The latter is quite infrequent in some places. Schottmueller's figures show a greater incidence of rheumatic aortic insufficiencies, but syphilis was a close second.

DR. HENRY A. CHRISTIAN, Boston: I believe that in aortitis occurring in youthful individuals rheumatism is more often the cause than syphilis. Aortitis occurs more often in later life, with hypertension, but in many of these cases the Wassermann reaction is negative and the history is negative for syphilis.

DR. LEWELLYS F. BARKER, Baltimore: I have noticed a marked reduction in the number of cases of syphilitic aortic insufficiency in white people, since the employment of intensive treatment of syphilis.

DR. E. S. KILGORE, San Francisco: I have been impressed with the variability of symptoms in early syphilitic aortitis; sometimes there is only a pain under the shoulder blades; sometimes a pain in the left flank; sometimes there is left epigastric pain; and in some cases there are no symptoms and they are discovered accidentally during the course of a roentgen-ray examination. I think that early consideration of a few symptoms, or no symptoms is more important than consideration of symptoms in the later stages.

DR. R. W. SCOTT, Cleveland: In this series, 94 per cent. of the patients had a positive Wassermann reaction. As to why the patients died, I think the obvious impairment of the aorta suggests that, perhaps, in syphilis the lesion is a progressive dilatation. In the aortic lesion in rheumatism there is no tendency to contraction, but there appears to be some burden put on the ventricle from which it does not recover. As to medication, these patients all received mercury and potassium iodid, but not arsphenamin. I think that the etiology depends on the class of patient and his social

surroundings. Variability of symptoms will depend on the organization of the patient. If the patient is of a highly organized make-up, he is likely to be more affected, and there may be a question of a secondary neurosis as well. Some patients are apt to suffer from angina pectoris, and others do not.

### Study of Cases with Marked Hypertension, Adequate Renal Function and Neuroretinitis

DRS. N. M. KEITH and H. P. WAGENER, Rochester, Minn.: We have studied twenty cases in which the blood pressure was high, particularly the diastolic; all showed neuroretinitis of a mild or severe type; all presented evidence of cerebral symptoms, either hemiplegia or severe headaches. In some cases, brain tumor had been considered. Another study was made of forty-one cases of brain tumor confirmed at operation. In only one of these was there retinitis, and in this there was a coincident arteriosclerosis. In our group of cases, death occurred within fifteen months in twelve cases. Studies of the blood picture showed very little anemia. The Wassermann reaction was negative. In most of the cases the phenolsulphonephthalein excretion was good. There was edema of the optic disks and surrounding tissue, without hemorrhages, but with cotton wool, or "snow bank" exudate. There was always irregularity and reduction of the caliber of the arteries, although different from the classical arteriosclerotic appearance. This group of cases differed from the essentially benign hypertension; also from chronic glomerular nephritis. The important finding is the neuroretinitis. The retinitis seems to be part of the general vascular disease rather than secondary to the primary lesion in the kidney.

DISCUSSION

DR. L. G. ROWNTREE, Rochester, Minn.: We have recognized benign hypertension which passes on to the malignant type with eyeground changes. With the malignant type there are marked renal changes. In the group of cases presented, with no renal involvement, it is a noticeable fact that none of these patients died a renal death, but died a cerebral death.

DR. EMANUEL LIBMAN, New York: I have seen some of these cases. The blood pressure need not be much elevated—in one of my cases it was at first only 160 systolic. These patients have a tendency to develop recurrent attacks of hemiplegia. Were any instances of hypercholesterolemia encountered? I have seen a few cases in which it was present to a moderate degree.

### Progressive Thrombophlebitis of Splenic, Portal and Hepatic Veins

DR. A. S. WARTHIN, Ann Arbor, Mich.: I have seen two cases in which there were no symptoms other than progressive enlargement of the abdomen. One case was in a woman, aged 28, the mother of two children. For two years there had been progressive abdominal enlargement. The other was in a young man of 30. In the first case, a diagnosis of hepatic cirrhosis was made in the medical clinic, and of tuberculosis of the peritoneum and portal thrombosis in the surgical clinic. Operation was advised. No tuberculosis of the peritoneum was found. She had ascites. There was a small nutmeg liver, with marked central cirrhosis. The abdomen filled up every few days, in spite of repeated tappings and withdrawal of 5.5 liters of fluid. The fluid was clear. There was no splenic enlargement. The blood count showed 5,500,000 red cells. The patient died suddenly. Necropsy showed a thrombosis of the hepatic veins extending into the inferior vena cava, where there was a thrombophlebitis, most marked in the mouths of the veins, the smaller ones being obliterated and the larger ones partly so. There was marked perivascular infiltration, associated with thrombi. There was more or less thrombosis throughout the portal system. In the second case a diagnosis of Banti's disease was made. The man had enlargement of the abdomen with ascites. The spleen was slightly enlarged. Inflammation was limited to the upper part of the inferior vena cava, extending into the renal and suprarenal veins and back into the portal systems.

## SYMPOSIUM ON RESPIRATION

### The Heart as Part of the Respiratory System

DR. G. CANBY ROBINSON, Baltimore: The purpose of the heart is to drive oxygen to the lungs, and in this mechanism there are two factors: (1) the number of beats, and (2) the amount of blood driven with each beat. The amount of oxygen in arterial blood can be measured, but it is difficult to determine the oxygen in venous blood returning to the right side of the heart. In normal persons, the heart rate shows very little variation; but there is considerable variation in the amount of oxygen per hundred cubic centimeters of heart blood. The oxygen utilization variation is considerable, and there is a variation in the oxygen present in the blood from 13 to 31 per cent. The minute output varies from 3,520 to 6,780 c.c., and the output per beat from 55 to 103 c.c. The measurement of the respiratory quotient checks up very closely with these figures thus obtained. Study of these figures shows that one cannot pay too much attention to variations within the normal, which are apt to be wide. When there is greater demand for oxygen in the tissues traffic, the heart must furnish a greater supply. There are three ways to get increased oxygen to the tissues: (1) increase in the heart rate; (2) increased output per beat, and (3) increased oxygen utilization per unit of blood.

### Aspects of Respiration Referable to the Lungs

DR. F. W. PEABODY, Boston: Recent work with the pneumograph and the spirometer has thrown much light on the physiology of the lungs. The vital capacity method has shown that the study of lung ventilation is as important to the clinician as to the physiologist. Vital capacity is the best index of lung ventilation, but the test depends very much on the cooperation of the patient. There is a wide variation in normal standards, and also there is no special diagnostic significance to any particular result. Each result must be interpreted individually, and disturbance in lung capacity must be correlated with the clinical picture presented by the patient. In pulmonary disease other methods can be used, but in pleurisy it is necessary to know how far the ventilation of the lung is interfered with. Its greatest value is in heart disease. When there is dyspnea on exertion, it is a sign of cardiac insufficiency. The vital capacity of the lungs in heart disease is an index of pulmonary circulation or interference of pulmonary movements on account of circulatory failure. Thus, one division of the circulatory cycle interferes with another part of the cycle.

### Relation of Carbon Dioxid and Oxygen

DR. D. D. VAN SLYKE, New York: The function of pulmonary respiration is to get carbon dioxid out of the blood and oxygen into it. Carbon dioxid is diffused through animal membrane from thirty to forty times as rapidly as is oxygen. The oxygen exchange, therefore, requires greater tension between the blood and the air, than does carbon dioxid. A pressure of 3 mg. is required for carbon dioxid and 70 to 80 mg. for oxygen to obtain oxygen exchange between venous blood and alveolar air. Arterial carbon dioxid tension is reached more rapidly than oxygen tension, and anything that retards free interchange of gases will affect oxygenization sooner than elimination of carbon dioxid. Oxygen exchange, therefore, is more readily interfered with. The respiratory resistence to oxygen lack is half as marked as to carbon dioxid accumulation. The mechanism of carbon dioxid stimulus will increase respiration tenfold, while decrease in oxygen will result in an increased stimulus of only 0.6 per cent. Actually, there is no way of increasing the amount of oxygen taken in to 20 per cent. by volume, and clinically the significance of accumulation of carbon dioxid in the arterial blood is impossible because oxygen deficit is fatal. The normal oxygen unsaturation in arterial blood is 90 per cent. In pneumonia, this is 68 per cent. It would seem, therefore, that the important factor clinically is the oxygen, and that one may assume that the carbon dioxid interchange is taken care of.

### Nervous Control of Respiration

DR. C. A. L. BINGER, New York: The lungs enjoy no automatism and depend on the interrelation of other organs

and systems. However, we must regard respiration as being purely reflex, because while rhythmic breathing continues after section of the vagus, owing to an inherent rhythmicity in the respiratory center, we can only vary the rate and force of the discharge. In regard to concentration of hydrogen ions in the blood as a stimulus which determines the character of the discharge, whether carbon dioxid has specific value is a moot point; but oxygen want is of the utmost importance, and deprivation causes damage which cannot be repaired. The respiratory center is not an undifferentiated region, but is divided into different levels with different functions. If the medulla is sectioned posterior to the corpora quadrigemina, normal breathing is not interfered with. The forebrain is concerned with voluntary respiration, but not quiet, rhythmic breathing; but there is a region in the upper part of the pons which acts as a pneumotaxic center and probably coordinates respiratory motions. Section at the region of the acoustic striae will produce respiratory tonus in the experimental animal. Lower there is a gasping center, and if section is done below this, all respiration stops. This probably corresponds to the "nerve vitale" of Galois. It is possible to follow the action of the vagus, on the string galvanometer, and thus produce electrovagograms.

### Effect of Tissues on Respiratory Functions of Blood

DR. J. P. PETERS, New Haven, Conn.: It has been supposed that arterial and venous blood are interchangeable, but experimental work has shown that they are quite different when exposed to different tensions of carbon dioxid. We have made studies of comparison of arterial and venous blood in hospital patients. Changes of as much as 10 per cent. dilution, and 5 per cent. concentration have occurred. The cells may become more concentrated, or the plasma more diluted, or the opposite may occur. In these changes there are changes in colloids which follow water changes. In a patient with essential hypertension, we found a difference in carbon dioxid capacity, in cell volume and in plasma volume. Venous blood is more acid and more concentrated. The respiratory quotient depends on the fluid consumption. So far we have not been able to get satisfactory respiratory quotients, in spite of refinements of technic.

### Bronchoscopy in the Treatment of Lung Abscess and Bronchiectasis

DRS. THOMAS MCCRAE, and E. H. FUNK, Philadelphia: Bronchoscopy helps in drainage of the lesion and removes a residual fluid which constitutes the pathologic factor by means of the clots and plugs that interfere with proper drainage. Bronchoscopy also aids in bacteriologic study and permits of introduction of medication. In all, 746 bronchoscopies were done without any untoward reactions. The majority of the patients were much improved; 10 per cent. recovered. Tuberculosis and empyema cases were not treated. The patients who were improved were sufficiently well to return to work. Bronchoscopy, in the hands of skilled men, is a safe procedure which warrants a trial when there is need for proper drainage, as in lung suppuration, when proper aspiration of septic material is deemed wise, and when local medication is to be given.

DISCUSSION

DR. N. E. BRILL, New York: Since 1915, we have been using bronchoscopy in bronchiectasis and lung abscess cavities, and the results have been gratifying. Many cases of lung abscess have been definitely cured. This method will replace surgery on the lungs, with its consequent tremendous mortality.

DR. JAMES ALEXANDER MILLER, New York: We have had bronchoscopy performed by three different surgeons in sixteen cases, some successfully. We had five definitely serious accidents. There were nine abscess cases and seven bronchiectases. Of the abscess cases, two were fatal. There was one rupture of the lung. Among the bronchiectases we had one fatality with hemorrhage. One pneumonia patient died; one got well. I feel that we must proceed with more caution before saying that this is a safe procedure.

DR. J. P. CROZER GRIFFITH, Philadelphia: I can testify to the excellent results obtained.

DR. C. L. MINOR, Asheville, N. C.: The great difficulty found in chronic pulmonary abscess is the extreme thickening of the wall. I believe that this disappears with bronchoscopy; but, unless we can remove that plug, it interferes with washing out the lung.

### Experimental Studies on Tuberculous Infection and Reinfection

DRS. A. K. KRAUSE and H. S. WILLIS, Baltimore: In human beings, the infection is contracted in childhood and lasts throughout life as adult tuberculosis. Persons who are not susceptible are immune throughout life. Tuberculosis therefore develops from slow infection from initial foci by bacilli that are there. The bacilli are fed into the body, perhaps when immunity may not be high, perhaps many times during the day. We tried to approach the problem in a similar way in infected animals (guinea-pigs), giving a mild germ which would give immunity and hypersensitiveness. This was given in repeated inoculations day after day, intracutaneously with comparatively low doses, using living bacilli, of low virulence to see whether the animal would tolerate the dose. This might show whether an avirulent germ would take on new virulence. In another test we gave very large doses of living tubercle bacilli to the animals, subcutaneously, for sixty-eight days. With the large doses, by the fourth week allergy was reduced and the animals were a mass of intracutaneous abscesses. On the sixty-ninth day we killed the animals; the tissues were clean, which was confirmation of the fact that the inflammatory conditions of tuberculosis are allergic phenomena. The animals also showed a polyserositis. There was also a peritonitis, probably due to lymphatic blocking, but this is not proved. We then tried a series of virulent inoculations in fifty animals, with a series of fifty controls. We also used the animals that received daily injections. The animals that came out best had the repeated inoculations; next came the standard immunized animals; then the normal controls; the last were the repeated subcutaneous injection animals. Half of the latter showed generalized tuberculosis, more than controls previously inoculated. This test needs further confirmation.

### Blood Fibrin Changes in Various Diseases, Especially in Diseases of the Liver

DRS. J. S. MCLESTER and MARTIN T. DAVIDSON, Birmingham, Ala.: The same person in health shows fibrin values within fairly constant limits. The fibrin falls in certain diseases, but keeps within fairly narrow limits for a given disease. In typhoid and the anemias, the values are low. In all other diseases, except those with marked destruction of liver tissue, fibrin values are high. They are highest in pneumonia and septic states. When a crisis occurs or an abscess is drained, there is immediate fall in fibrin values. A sterile turpentine abscess is as effective in calling forth fibrin as is a bacterial abscess. Anything that interferes with liver function or destroys structure gives low fibrin. The lowest fibrin values were obtained in a patient with cancer of the liver with much destruction of tissue; the next lowest values were in a patient with extensive tuberculous destruction of the liver. Tuberculous ulcer, other than hepatic, produced high fibrin values.

### Pathologic Physiology of Botulism

DRS. C. W. EDMUNDS and G. F. KEIPER, JR., Ann Arbor, Mich.: Our experiments point to the fact that if we can render the patient nontoxic and keep him alive by artificial respiration, we can give the nerve endings a chance to recover. This would be a comparatively simple treatment, and could be applied to patients suffering from botulism.

### Liver Injury in the Thyrotoxicoses, as Evidenced by Decreased Functional Efficiency

DRS. L. M. WARFIELD and J. B. YOUMAN, Ann Arbor, Mich.: Injury to the liver may be great, and occurrence of jaundice is of grave prognosis. That liver injury plays a rôle is not sufficiently considered. The decreased glucose tolerance is a possible result of damage to the liver. In our work, liver function was tested by the phenoltetrachlorphthalein method of

Rosenthal. Patients with severe heart failure were not used, but liver tests were delayed till compensation was established. In thirty-three cases, twelve showed evidence of liver injury, and four were doubtful. None showed severe damage. The liver damage did not show relation to damage of glucose tolerance. In the group that showed no liver damage, some showed decreased glucose tolerance. Damaged livers showed high metabolic rates, but no definite ratio, and in some cases normal liver function showed higher or as high metabolic rates. Liver damage and loss of weight were apparently not connected, but liver damage was found in patients who could not handle the usual caloric intake. There was no relation to age or sex.

*(To be continued)*

## MEDICAL ASSOCIATION OF GEORGIA

*Seventy-Fifth Annual Meeting, held at Augusta, May 7-9, 1924*

The President, DR. JOHN W. DANIEL, Savannah, in the Chair

### SYMPOSIUM ON ABDOMINAL SURGERY

#### Preventive Abdominal Surgery

DR. C. W. ROBERTS, Atlanta: Surgery must be controlled by an attitude of personal responsibility for final results. Postoperative surveys and adequate follow-up systems will do much to furnish data with which the earnest surgeon will measure the efficacy of his work. In the light of final results psychic factors have had time to disappear, and many apparent early cures are shown to be of evanescent nature. An abdominal operation should be justified by undisputed and tenable grounds. It requires greater courage to refuse to operate than is exemplified when operation is chosen as a therapeutic measure. When the profession and the public stop judging the surgeon's worth by the number of operations he performs and consider the principles which actuate his endeavors, there will be witnessed numerical reductions in many places where now the contest for numbers abounds. Preventive surgery involves clean-cut, early diagnosis, which shifts the responsibility for its application to those who are first called, usually the family physician.

#### Surgery of the Gallbladder

DR. B. T. WISE, Plains: Constipation is present in about 80 per cent. of all cases of gallbladder disease. Proper regulation of the diet and mild laxatives after surgical convalescence add greatly to rapid relief from distress, and many mild cases of gallbladder disease without gallstones may be relieved by adoption of this procedure. When definite pathologic changes have occurred in the gallbladder that are sufficient to jeopardize life or impair health, surgical intervention is indicated. I recommend cholecystectomy as the best treatment for infections of the gallbladder, and cholecystotomy when conditions are not favorable, with abdominal drainage in all cases in which infection is present or has recently been present.

#### Tuberculous Obstruction of Duodenum

DR. W. E. PERSON, Atlanta: The outstanding feature in my case was emaciation. There was also marked tenderness in the epigastrium and over McBurney's point. The abdomen was slightly distended; no masses could be felt. There was no gross or occult blood present in the feces. There was secondary anemia, and the blood Wassermann reaction was 2 plus. Roentgen-ray examination revealed an unusually large, bulbous stomach with dilatation of the pylorus and first portion of the duodenum. The duodenal cap could not be outlined. A six hour plate showed 50 per cent. retention. A surgeon, who believed the trouble was pylorospasm due to a chronic appendicitis, removed the appendix. The pyloric region was reported free from any gross pathologic changes. The patient's condition became worse. A clinical diagnosis of ulcer of the pylorus, possibly malignant, led to a posterior gastro-enterostomy. There was marked dilatation of the stomach; the pylorus was only slightly movable; a mass of glands surrounded the pylorus but did not cause obstruction. In the anterior duodenal wall, in the first portion, was a nodule about the size of a small English walnut. The entire first portion of the duodenum was thickened. The operative diagnosis was carcinoma of the duodenum and pylorus. Microscopic examination of two glands removed from the greater curvature disclosed tuberculosis. Careful search revealed no other tuberculous focus.

#### Carcinoma of Pancreas

DRS. C. D. WARD and R. H. CHANEY, Augusta: The two cases that we have seen represent the two great clinical groups of pancreatic carcinoma, the first with pain as the predominating symptom, the second with cachexia most dominant. Both cases markedly illustrate the difficulty of even palliative surgery when the process is advanced. One of our patients was only 23.

#### Cancer of Small Intestine

DR. GEORGE A. TRAYLOR, Augusta: Given a case of inexplicable, recurring, colicky pain in the abdomen which is not amenable to judicious catharsis and properly regulated diet, and is afebrile, it would seem that a thorough roentgen-ray study of the gastro-intestinal tract would be the best means of making a correct diagnosis. Once a cancer of the small intestine has been diagnosed, or suspected, the patient should be operated on and the growth removed as radically as the circumstances will permit. From the after-history of the majority of cases, the outlook for recovery from the disease does not appear so promising; but with earlier recognition the hope of ultimate cure may be brighter.

#### Postoperative Dehydration

DR. R. M. HARBIN, Rome: In the presence of a normal fluid content, dehydration may refer to a condition of need of a greater quantity of water to combat systemic infections, and for this reason forcing liquids becomes rational. Practically no water being absorbed in the stomach and little in the small intestines, our main reliance depends on the colon. In cases of acute hemorrhage, after the introduction of fluids the blood cells seem to increase with the total volume of blood. In shock, intravenous saline solutions go to the tissues without increasing the total blood volume, and, as a result, depletion persists. In systemic infections, the water needs are proportionately greater than in normal conditions. The so-called Murphy-Ochsner gastric lavage—Fowler bed technic—should be resorted to in practically every laparotomy that has necessitated a drainage tube, because the degree of virulence of infection cannot be demonstrated at operation. While the average laparotomy may not draw on the fluid reserves, laxatives are still necessary for comfort; but purgation should be avoided, and postoperative discomforts may not be altogether attributed to dehydration. The crying need in all cases of acute gastro-intestinal stasis is fluids as a *vis a tergo* applied early and actively. Clinical observation warrants the belief that the surgical hazards in cases of obesity are greatly one of dehydration. Pituitary extract limits the degree of dehydration of the tissues by preventing loss of fluids through a reverse process of osmosis. Forcing fluids is a valuable preoperative treatment in jaundice, prostatic obstruction and obesity, and especially in diabetes.

#### State-Wide Health Association

DR. C. H. RICHARDSON, JR., Macon: Last October the State-Wide Health Association was organized at Atlanta to conduct a campaign of education to arouse the people of this state to the support of the program which it proposes to sponsor. The method proposed by this association is: a closer understanding between the commercial bodies, the Medical Association of Georgia, and the state, county and city officials. The medical men are to put before the local chambers of commerce, civic clubs and community meetings the facts and figures as to losses sustained through inefficiency and deaths due to preventable diseases, then have these various organizations cooperate, and have the Ellis health law adopted for their respective counties. Then have

the cooperating bodies convert their legislators and state senators to the necessity for an appropriation that will make our state board of health an efficient and effective organization in carrying on the work of eradication of preventable diseases in Georgia.

## SYMPOSIUM ON DISEASES OF CHILDREN

### Acidified Milk with Karo Syrup as an Artificial Feeding for Babies

DR. W. A. MULHERIN, Augusta: To make lactic acid milk with karo syrup, 3 pints of fresh cow's milk is thoroughly shaken so as to mix the cream with the milk. The amount of milk needed in the formula is boiled for five minutes, and then placed on ice until it is cold. The milk must be cold when lactic acid is added. The scum is removed from the milk, and enough boiled water is added to replace the water evaporated from boiling. One teaspoonful (60 drops) of lactic acid is added drop by drop for each 16 ounces of milk. The milk is stirred while the lactic acid is added. Now two level tablespoonfuls of karo syrup (blue label) for each pint of milk is stirred into the milk. More karo syrup may be used for the average baby, if desirable. The mixture is divided into the desired number of feedings and kept on ice. It is warmed again to blood heat as needed. Karo syrup is used because it is chiefly corn syrup, containing dextrin, 55 per cent.; maltose, 30 per cent., and glucose 15 per cent. One ounce of karo syrup is equivalent to one ounce of sugar. The caloric value is 120 an ounce. It is the most difficult of the sugars to ferment; therefore, less likely to cause diarrhea. It is better tolerated by the infant's digestive organs than are the other sugars, and is more easily assimilated. Acidified milk with karo syrup is practically as digestible as mother's milk. It can be beneficially fed to sick babies the same as to well babies. It is especially helpful to malnourished and marantic babies. It is an ideal food to use for complemental feeding when mother's milk is not wholly sufficient. It is the food of choice when strictly artificial feeding has to be practiced. Owing to its inhibitory action on the growth of intestinal bacteria, it is an especially good summer feeding. As yet, no contraindications to the use of lactic acid milk are known.

### Modified Breast Milk

DR. W. L. FUNKHOUSER, Atlanta: My appeal is to modify mother's milk to the digestive ability of the baby, rather than trying to adjust any substitute. If the fat content is abnormally high and the baby is vomiting a sour, curdy material and there are many fat curds in the stool, water may be given before nursing and the feeding interval lengthened. A complemental feeding of a mixture low in fat, such as skimmed milk mixture or a solution of calcium caseinate, is given after nursing. For the best possible results in all procedures, one should secure the mental rest of the mother. The weight is a valuable guide as to progress, but should not be estimated more than once a week, except by orders from the physician for special reasons.

### Some Problems of the Slowly Convalescent or Half-Sick Child

DR. R. L. MILLER, Waynesboro: Children who have had their tonsils and adenoids removed should remain for a longer time in the hospital, and more attention should be paid to the condition in the posterior nares and throat than we are accustomed to give them. We should follow up more closely children who have suffered from the acute exanthems, especially looking for early tuberculous trouble.

### Intestinal Protozoa

DR. V. P. SYDENSTRICKER, Augusta: The protozoal infections are no less frequent than the infections due to hookworm, are no less active as causes of debility and economic loss, and should be sought for with no less assiduity. Like the hookworm and typhoid carrier, the infected individual constitutes a menace to the public health. Secondary to amebiasis in importance are the flagellate infections. The diagnosis of these infections depends entirely on the degree of thoroughness with which the examination of stools is carried out. Emetin and ipecac given in adequate dosage, with proper rest and dietary regimen, will cure ambiasis. The various other remedies have not proved efficacious. We have found that oral or transduodenal administration of salicylic acid, in 1 gm. doses, immediately followed by large doses of magnesium sulphate, gives more satisfactory results than any other form of medication.

### Status Thymicus in Children

DRS. W. N. ADKINS and W. T. FREEMAN, Atlanta: When practicable, all new-born babies should have a roentgen-ray examination of the thorax. When in doubt, a single therapeutic dose of roentgen ray to the thymic area will do no harm, and will probably help the existing condition as well as the diagnosis. Before subjecting lymphatic hyperplasia patients to operation, it would be wise to have a roentgenogram of the thorax made to rule out demonstrable thymic enlargement.

### Tetany

DR. CLEVELAND THOMPSON, Millen: Tetany from whatever cause can be controlled and cured, and the drug *par excellence* is calcium. It is immaterial whether one uses the chlorid or the lactate, but it must be used in large doses. I use the lactate in teaspoonful doses in infants, and have seen nothing but good from it. During an attack, 2 c.c. of a 25 per cent. magnesium sulphate solution, given intramuscularly and repeated every three or four hours, will relieve the spasm until the calcium can be exhibited. The spasm can be relieved also by liberal bloodletting. In general, one should remove the cause if possible. That due to an alkalosis is best treated by large doses of tenth normal hydrochloric acid, or by the administration of ammonium chlorid. Finally, in all cases, from whatever cause, one should relieve constipation, flood the system with fluids, give no sodium bicarbonate, limit the proteins, and secure quietude and rest. The diet should consist of foods rich in calcium, such as milk, oatmeal and vegetables, especially cauliflower. Cod liver oil is valuable, but must be given in large doses.

### Treatment of Pneumonia

DR. STEWART R. ROBERTS, Atlanta: In the treatment of pneumonia, one should maintain an elastic routine, treat the symptoms as they arise, avoid cardiac depressants, maintain the circulation, and use liquids freely to decrease the toxemia. A large urinary output is necessary. The patient should be kept comfortable, his pain relieved. A comfortable sleep every night is desirable. The patient is to be given a food intake sufficient to maintain strength. The fever is reduced by water, internally and externally, by cold air, and by an icebag to the head. The pain may be relieved by morphin, by strapping the affected side or by counterirritation. The patient should have a bath daily. The patient's mouth, nose and body and the bed should be clean, and the air fresh and pure. There is no specific for pneumonia. Careful nursing is probably more important than drugs. In general, the fewer the drugs and the wiser the clinical judgment, the safer the patient.

### Treatment of Bone and Joint Tuberculosis

DR. LAWSON THORNTON, Atlanta: Early recognition and immediate treatment are essential for prevention of massive destruction and deformities. Immobilization is absolutely necessary for healing of bone and joint tuberculosis. Fusion of tuberculous joints insures permanent healing of the disease. Hospitalization of many months facilitates the treatment of this disease. Heliotherapy and general hygienic treatment play a great part in healing tuberculosis of bone.

### Air Cystograms to Demonstrate Prostatic Enlargements that Protrude into the Bladder

DRS. EDGAR G. BALLENGER, OMAR F. ELDER and WILLIAM F. LAKE, Atlanta: Cystoscopic examinations are not always advisable or feasible. Air cystograms are not required in all cases. We do not advise air cystograms in every case, but rather in those in which additional information is desired than that obtained in the usual examinations, and in those in which it is impossible to do a cystoscopic examination.

Comparatively little discomfort is produced by the air in the bladder in those patients who have residual urine and are free from cystitis.

### Surgical Problems in Carcinoma of the Breast

DR. MARION C. PRUITT, Atlanta: The risk of a brawny arm, or decrease in function, or pain in the region of scar, following radical operation, is the price the patient must pay for extension of life or a permanent cure. Excision with the cautery gives a greater percentage of cures than excision with the knife. Preoperative irradiation increases the percentage of cures. Postoperative irridiation is very valuable, but not so effective as preoperative.

### Some Phases of Cardiac Insufficiency

DR. T. C. COLEMAN, Augusta: Deaths from heart failure are apparently increasing with rapidity. As a cause of death, heart disease outranks any other disease. I believe that the increase is more apparent than real, partly because of more thorough diagnostic measures, more accurate mortality records, and actually through diseases incident to the World War and the epidemic of influenza. For all clinical purposes, most cases of cardiac insufficiency, whether relative or complete, are exocardial. A few exceptions will be found: Sudden death may be due to heart block, by hemorrhage into the floor of the fourth ventricle, possibly by fright, by acute dilatation of the stomach from pressure, and the absorption of toxins. The agents and their toxins responsible for cardiac insufficiency may be said to be included under the class of all pyogenic organisms. A pyogenic focus may exist anywhere in the body and the individual may be unconscious of it, but in the end the heart strain forces him to consult a physician. This emphasizes the desirability of frequent so-called "health examinations."

### Etiologic Factors in Mental Breakdowns

DRS. JAMES N. BRAWNER and A. F. BRAWNER, Atlanta: In a study of 210 cases, in thirty-five, or about 15 per cent., the mental breakdowns were due to a direct invasion of the brain by micro-organisms. In about 7.5 per cent., the psychoses were due to focal infections in other parts of the body; 22.5 per cent. of the mental breakdowns were due to micro-organisms that invade the body. It is very probable that at least 33 per cent. of all mental breakdowns are due to infections. The next most important etiologic factor is defective constitutional make up. In fifty-four cases, or about 25 per cent., this was the main factor in causing the psychoses; in reality, many patients show a defective constitutional make up, but it is not given as the main etiologic factor. About 10 per cent. of the cases were due to the ingestion of alcohol and drugs; 16 per cent. were acute autotoxic confusional and hallucinated states. The fact that most of these patients recover rather suddenly also suggests that their recovery is due to the formation of an antitoxin the same in principle that occurs in the cure of the infectious diseases. About 5 per cent. of the cases were due to old age, cerebral softening, etc., and 3 per cent. to endocrine disturbances, which does not include the endocrine abnormalities found in dementia praecox. About 10 per cent. were due to various causes, such as defective food, prolonged physical work (usually in the hot sunshine), and the puerperium. About 7 per cent. were due to unpleasant psychic experiences, emotional shocks or unbearable situations, usually in love affairs.

### Relation of Adherent Prepuce to Epilepsy

DR. E. BATES BLOCK, Atlanta: Of 500 cases of epilepsy, fifty-five patients had adherent prepuce—thirty-eight males and seventeen females. In more than one third of the cases the convulsions began before the third year, and in forty out of the fifty-five patients, before the age of 10.

### State Board of Health Program

DR. J. P. BOWDOIN, Atlanta: We expect to ask the coming legislature to fix the appropriation for the state board of health on a per capita basis on the estimated population and promulgated by our census bureau, beginning in 1925 with 4 cents, and increasing 2 cents per capita each succeeding year until a total of 12 cents is reached. This will give us the same as North Carolina and half as much as Florida. There is a baby born in Georgia every seven minutes. Before another sun sets, eleven of them have died; 4,366 died last year under 1 year of age; 3,157 were stillborn; 637 mothers died in childbirth. Of the 69,615 babies born, 22,709 had no physician in attendance. This is one of the most serious problems of our state.

### Cause and Treatment of Vernal Conjunctivitis

DR. A. G. FORT, Atlanta: We have studied thirty cases. Smears from the conjunctivae showed eosinophils in seven out of sixteen cases; blood examination showed a constant eosinophilia. Eosinophilia from the presence of intestinal parasites was ruled out, as in every case in which the stool was examined for them, none were found. We accepted the theory that vernal conjunctivitis is a disease kindred to hayfever, and that the manifestations are caused by a hypersensitiveness of the conjunctiva of children to some foreign substance, most likely pollen, as this hypersensitiveness manifests itself during the pollinating period for grasses and trees. We made diagnostic skin tests with pollen and noted the reaction. All of our cases so examined gave a positive reaction. We then proceeded to treat with pollen extract as suggested by the American Hay-Fever Association, and our results have been uniformly good. Of the fifteen patients so treated, we have had two cures, and thirteen have shown much improvement.

### Nonseasonal Hay-Fever

DR. HAL M. DAVISON, Atlanta: The proper designation for the symptom-complex formerly known by the names of hayfever, vasomotor rhinitis and hyperesthetic rhinitis, is atopic coryza. In the cases of nonseasonal atopic coryza, sensitiveness has been demonstrated to orris root, rice, house dust, the pollens, wheat flour, chicken features, goose feathers, cat dander, horse dander, corn meal and a number of different foods. Every case of nonseasonal atopic coryza should be tested with the entire inhalant group—including the pollens—with the foods, and with the bacteria. The immunologic treatment of cases of atopic coryza showing definite sensitization to the inhalants is uniformly successful. In cases in which no sensitiveness can be demonstrated, an underlying endocrine basis should be searched for, and after such basis has been established, proper treatment instituted. Administration of peptones, or of calcium salts, with thyroid extract, together with irradiation with the air-cooled ultraviolet light, may be efficacious in such cases.

### Acute Pancreatitis Following Gestation

DR. L. A. BAKER, Tifton: My patient had an acute attack of appendicitis about three months before conception. Operation was recommended, but declined. During the time of the acute inflammatory process, the ducts of the pancreas were occluded, and the contents became inspissated; for three months there was practically no secretion from the pancreas into the alimentary tract, and during this time stones formed, and when they were expelled the patient had colic. The ducts in all probability were completely emptied. Since that time, from all clinical aspects, the gland has been functioning properly. Since recovering from these attacks, the patient has been well in every particular.

### Measles Transmitted by Blood Transfusion

DR. H. P. HARRELL, Augusta: In seeking an explanation as to why a patient developed measles on the eighteenth day while in the hospital, we learned that, two days after the transfusion, the donor had a typical measles rash. She was in the preeruptive stage when she gave the blood for the transfusion. As there were no cases of measles in the hospital at this time, and as the donor did not come in close contact with the patient, we came to the conclusion that the disease was transmitted through the blood. The interval between admission and transfusion was eighteen days. The interval between transfusion and development of measles was ten days. In selecting donors it would seem advisable to take a careful history as to exposure to measles and to look for Koplik spots.

# Current Medical Literature

## AMERICAN

Foreign journals are loaned to individual subscribers to THE JOURNAL for a period of three days only. Requests for copies should enclose 6 cents postage. Only one journal will be loaned at one time. Journals are not loaned to libraries.

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Roentgenology and Radium Therapy, New York

**11**: 311-382 (April) 1924

Study of Sternum by Roentgen Rays. G. E. Pfahler, Philadelphia.—p. 311.

Ryan's Rule. A. H. Pirie, Montreal.—p. 316.

*Roentgen-Ray Interpretation of Duodenal Ulcer. J. S. Diamond, New York.—p. 317.

Effect of Direct Radiation Over Precordium on Heart Size, Heart Mechanism and Myocardium of Rabbits. B. Gordon, G. F. Strong and E. S. Emery, Jr., Boston.—p. 328.

Indications for Roentgen-Ray Therapy in Chronic Tonsillitis and Pharyngitis. W. D. Witherbee, New York.—p. 331.

Melanosarcoma Treated with Roentgen Rays. A. K. Owen, Topeka.—p. 335.

Massive Collapse of Lungs. M. Ritvo, Boston.—p. 337.

*Effect of Roentgen Rays on Bone Marrow. E. H. Falconer, L. M. Morris and H. E. Ruggles, San Francisco.—p. 342.

Roentgen-Ray Study of La Brea Fossils. H. Snure, Los Angeles.—p. 351.

Diverticula of Stomach. E. S. Emery, Boston.—p. 354.

Case of Pneumoconiosis with Necropsy Findings. J. H. Green, Rochester, N. Y.—p. 358.

Roentgen-Ray Diagnosis of Aortic Aneurysm. E. C. Samuel, New Orleans.—p. 361.

Roentgenographic Chest Technic. H. L. Sampson, Thudeau, N. Y.—p. 373.

Causes of Poor Contact Between Intensifying Screens and Films. R. B. Wilsey, Rochester, N. Y.—p. 375.

**The Niche in the Diagnosis of Duodenal Ulcer.**—A series of thirty cases is presented by Diamond revealing twenty, or 66 per cent., niches, eighteen functional defects, twelve of which are associated with niches, six organic defects representing old callous ulcers; nineteen, or 95 per cent. of the twenty niches revealed an accompanying retraction. The most constant roentgen-ray finding was the niche, which may vary from the mucosal defect to a deep penetrating crater. It is shown that a duodenal defect is most often functional in nature and is produced by a contraction of the circular muscle fibers on the longitudinal bundles on the lesser curvature side, and that it seldom represents the ulcer base, the ulcer being usually opposite to and in the same segment of the defect. Less often is the defect produced by organic changes such as scar formation or induration. Another type of spastic contracture is shown, "retraction," most often found on the lesser curvature side, surrounding the base of the niche, and due to contraction of the longitudinal bundle itself, thus often intensifying the appearance and size of the niche. The administration of belladonna for forty-eight hours and the restriction of the patient to a milk diet, invariably cause a relaxation of the accompanying spasm, thus permitting the filling of a niche which was not visualized in the previous examination. This method of reexamination has increased the number of visualized niches.

**Effect of Irradiation on Bone Marrow.**—Direct irradiation of the long bones of the dog, in both light and heavy dosage, did not appreciably stimulate or decrease the contained marrow cells. Repeated small doses of roentgen rays over the spleen caused a slight increase in the number of cells in the marrow of the long bones (right and left tibia) of the dog; also there was noted an increase in the proportion of immature marrow cells. Irradiation over the spleen produced a rise in the number of platelets in the peripheral circulation, which rise was maintained during the experiment. The general condition of both animals was improved during the experimentation and the hemoglobin and erythrocytes increased. No untoward effects were noted as a result of frequent bone marrow punctures.

### American Journal of Syphilis, St. Louis

**8**: 193-376 (April) 1924

*Quantitative Studies in Syphilis from Clinical and Biologic Point of View. XI. Partition of Arsenic in Serum and Clot After Intravenous Administration of Arsphenamin, Neo-Arsphenamin and Silver Arsphenamin. J. A. Fordyce, I. Rosen and C. N. Myers, New York.—p. 193.

*Id. XII. Arsenic Content of Blood After Intravenous Injection of Tryparsamide. J. A. Fordyce, I. Rosen and C. N. Myers, New York.—p. 264.

*Id. XIII. Arsenic Content of Cerebrospinal Fluid After Intravenous Injection of Hypertonic Saline Solution and Neo-Arsphenamin. J. A. Fordyce, I. Rosen and C. N. Myers, New York.—p. 297.

Acute Febrile Syphilitic Meningitis: Two Cases. C. E. Kiely, Cincinnati.—p. 308.

*Increase of Permeability of Choroid Plexus to Arsphenamin with Methyl Violet. D. C. Smith and J. A. Waddell, Charlottesville, Va.—p. 310.

*Reinfection in Syphilis. M. A. Reasoner, New York.—p. 313.

Syphilis of Vocal Cords, Pituitary Body and Spinal Cord. R. A. Hernandez, Tucson, Ariz.—p. 321.

*Kahn Reaction in Serologic Diagnosis of Syphilis. H. L. Keim, Ann Arbor, Mich.—p. 323.

*Sachs-Georgi Flocculation Test for Syphilis; Simplification of Technic. S. Hata, Tokyo, Japan.—p. 334.

*Syphilitic Substance in Syphilitic Serum. K. Taoka, Tokyo, Japan.—p. 340.

Aortic Pain and Antisyphilitic Treatment. C. G. Cumston, Geneva, Switzerland.—p. 349.

Pooled Arsphenaminized Fortified Serum in Treatment of Syphilis. J. G. Marthens, Dayton, Ohio.—p. 353.

**Partition of Arsenic in Serum After Medication.**—From the evidence presented by Fordyce, Rosen and Myers, there emerges the fact that contrary to the usual claims regarding the greater efficiency of arsphenamin, these findings indicate a superiority on the part of neo-arsphenamin in syphilis of the central nervous system. Further, irrespective of the type of drug used, there is a fixed partition coefficient of the clot. Whenever abnormal variations appear in the arsenic value in this portion of the blood, unusual manifestations have taken place in the patient. Careful study of these values indicate that the composition of the blood and of the serum are important factors which determine the presence or absence of arsenic at any particular moment.

**Arsenic Content of Blood After Tryparsamide.**—Three hundred and four specimens of blood were examined by Fordyce et al. for arsenic after intravenous injections of tryparsamide. Analysis of blood removed immediately after injection showed that 35.2 per cent. of the arsenic injected remained in the circulation with 46.8 per cent. localized outside of the blood stream. At the end of fifteen minutes, 7.65 per cent. remains in the blood. At the end of seventy-two hours only 0.012 per cent. is present in the blood stream, indicating that tryparsamide is removed rapidly from the circulation and that it is eliminated rapidly.

**Arsenic Content of Cerebrospinal Fluid After Medication.**—Arsenic determinations were made on seventy-six specimens of cerebrospinal fluid after the intravenous injection of 15 per cent. sodium chlorid solution followed by neo-arsphenamin six hours later. Analyses made at verious periods showed a considerable regularity in the quantity of arsenic which penetrates to the cerebrospinal fluid at these particular intervals. Only one specimen was found in which it was not present. While there appears to be a uniformity in penetration, it would seem from the data collected that this procedure does not favor the passage of large amounts. On comparison with the Swift-Ellis method with neo-arsphenamin it will be seen that 10.5 per cent. of the fifty-six fluids examined had quantities varying from 50 to 83.6 per cent. milograms per 100 gm. of dried specimen, while after the hypertonic saline injection only one case in seventy-six showed as high a content as 53 mg.

**Effect of Methyl Violet on Permeability of Choroid Plexus.**—Smith and Waddell summarize their experiments by stating that methyl violet, when given intravenously, does not increase the permeability of the choroid plexus to arsphenamin in dogs.

**Reinfection in Syphilis.**—Of the six cases reported by Reasoner, it is believed that the history is sufficient on which to base an opinion that four of them were cured of syphilis and then became reinfected.

**Value of Kahn Test for Syphilis.**—The clinical application of the Kahn test has been studied by Keim in 1,000 cases. Three hundred and fifty of these examinations were performed with the original method as previously reported. The remaining 650 tests were carried out by Kahn's latest procedure in which three different serum-antigen proportions are employed

and the tests are completed a few minutes after mixing serum with antigen. The results obtained indicate that the newer procedure possesses a higher degree of sensitiveness. In addition the rapidity of reading of final results is a marked practical advantage. Further, the test has lost none of its specificity in spite of the fact that a few weak reactions are obtained in a very few apparently nonsyphilitic serums. Finally, the Kahn test, as performed at present, gives promise of ultimately solving many of the problems which must always be associated with the use of the complicated Wassermann test for the laboratory diagnosis of syphilis.

**Modification of Sachs-Georgi Test.**—A modification of the Sachs-Georgi technic is presented by Hata which is said to require less time, is more simple than the original technic, and gives equally satisfactory results.

**Specific Syphilitic Substance in Syphilitic Serum.**—The results so far obtained by Taoka indicate that there is a certain specific syphilitic substance in syphilitic serum, which he has isolated and which combines with visceral extract. It is probably not a protein body, and it is not yet known by what process the substance is produced in the human body.

## American Review of Tuberculosis, Baltimore

**9**: 83-190 (April) 1924


*Spread of Tuberculous Infection in Body. A. K. Krause, Baltimore.—p. 83.
*Concentration of Bacteria by Aluminum Hydroxid Cream. C. C. Saelhof, Chicago.—p. 97.
*Use of Volatile Hydrocarbons in Concentration of Tubercle Bacilli. P. M. Andrus and H. E. MacMahon, London, Ontario.—p. 99.
Influence of Sunlight on Hydrogen Ion Concentration of Blood. F. C. Balderrey and O. Barkus.—p. 107.
*Besredka's Tuberculosis Antigen and Complement-Fixation Reaction. B. M. Fried, Boston.—p. 112.
*Complement-Fixation Reaction in Tuberculosis with Kolmer's Quantitative Method. R. A. Kilduffe, Pittsburgh.—p. 127.
*Complement-Fixation Test for Tuberculosis. K. T. Sasano, Mt. McGregor, N. Y.—p. 136.
Antigenic Properties of Bacteria Giving Complement Fixation with Tuberculous Serums. L. Dienes and L. Balas, Asheville, N. C.—p. 144.
Production of Antibodies Against Alcohol Extract of Tubercle Bacilli. L. Dienes and L. Balas, Asheville, N. C.—p. 154.
*Calcium Chlorid Treatment of Tuberculous Enteritis. E. H. Roberts, Denver.—p. 159.
Correlation of Necropsies and Clinical Medicine in Tuberculosis. W. B. Jameson, Hamburg, Pa.—p. 173.
Tuberculosis Work Abroad. R. Clifford, Boston.—p. 185.


**Tuberculosis a Metastasizing Infection.**—Tuberculosis, says Krause, is a conspicuous example of a metastasizing infection. It spreads by concentric growth or direct extension of foci; or by short excursions of bacilli along lymphatics or by their lymphatic passage over greater distances; or by venous or arterial transference; or by conveyance along visceral ducts or channels, as by bronchi, ureter and intestines.

**Concentration of Bacteria by Aluminum Hydroxid.**—A method for the rapid concentration of bacteria in fluid medium by the use of aluminum hydroxid cream is presented by Saelhof. This cream forms an excellent background for micro-organisms which do not take the counterstain of Gram's method.

**Concentration of Tubercle Bacilli.**—An improved technic for the demonstration of tubercle bacilli in morbid products is described by Andrus and MacMahon. They use a 0.5 per cent. solution of sodium hydroxid and chloroform. Among the clinically tuberculous the tubercle bacillus has been demonstrated in 57 per cent. of cases negative by the direct method on repeated examinations. Bacilli have been demonstrated in the sputum of persons considered nontuberculous, necessitating a change in diagnosis.

**Besredka's Antigen for Complement Fixation Test for Tuberculosis.**—The complement fixation test with the use of Besredka's tuberculosis antigen was performed by Fried on 1,199 tuberculous and nontuberculous patients. Six hundred and thirty-nine of these patients (nontuberculous) were under treatment for diseases of the heart, lungs, liver, kidney, etc. Thirty of the 639 cases were clinically diagnosed as tuberculosis. The complement fixation test with Besredka's antigen was positive in twenty-four instances out of the thirty. Of the 609 patients diagnosed as nontuberculous the test agreed with the clinical findings in 598 instances, or in 98.2 per cent. In only eleven instances of these 609, or in 1.8 per cent., was the test positive, while clinically no tuberculosis could be discovered. Of another series of 160 patients, also nontuberculous, the test agreed with the clinical diagnosis in 154, while in six instances, the test for tuberculosis was positive. Of another series of 400 serums from tuberculosis patients under treatment, 359 showed a positive complement fixation test with Besredka's antigen. Of fifty-one serums from syphilitic patients, with a strongly positive Wassermann reaction, without clinical signs of tuberculosis, only six fixed complement in the presence of the tuberculous antigen. The stability of Besredka's tuberculous bacillary emulsion antigen was studied from a point of view of its antigenic power, as well as its anticomplementary properties. After twelve months it was found that the antigen still retained all of its original properties.

**Complement Fixation Test for Tuberculosis.**—Kilduffe thinks it inadvisable to abandon the possibility of tuberculosis as a diagnosis because two, or a dozen sputum examinations have been negative. As long as there are physical signs suggestive of tuberculosis, sputum examinations should be repeated until the bacilli are found or the condition can be shown to be nontuberculous. A positive complement fixation reaction when the sputum is negatuve, especially if this finding be repeated, would be strong evidence of the presence of an active tuberculous focus, although, as yet, the diagnosis should hardly rest on this uncorroborated evidence. Tuberculosis cannot be ruled out because of a negative complement fixation reaction, but a positive reaction, especially if repeatedly demonstrated, forms strong evidence of the existence of a tuberculous focus. In other words, the value of the complement fixation test in tuberculosis depends entirely on the degree of intelligence and clinical acumen with which it is utilized and interpreted in correlation with the clinical data. The results of complement fixation tests in 104 cases of tuberculosis are reported and the findings discussed.

**Complement Fixation Test for Tuberculosis.**—From the evidence presented by Sasano, it appears that the complement fixation test in tuberculosis compares favorably with the Wassermann test in syphilis for diagnostic purposes. It resulted in 42 per cent. of positives in minimal, 84 per cent. in moderately advanced and 94 per cent. in far advanced cases, averaging 80.5 per cent. in the total tuberculous patients examined. At the same time, there were only 26.3 per cent. of positive sputums among the minimal, 45 per cent. among the moderately advanced and 70.6 per cent. among far advanced cases, averaging 46 per cent. in the total cases of tuberculosis examined.

**Calcium Chlorid in Treatment of Intestinal Tuberculosis.**—The results obtained by Roberts and his associates with calcium chlorid, as an adjuvant to heliotherapy and dietetics, in the treatment of seventy cases of intestinal tuberculosis have been good, in their opinion. Five cubic centimeters of a 5 per cent. aqueous solution of recrystallized calcium chlorid is injected intravenously once weekly, every fifth day, or twice weekly as indicated by the results.

## Archives of Neurology and Psychiatry, Chicago

**11**: 501-618 (May) 1924


*Aphasia and Apraxia. P. Bailey, Boston.—p. 501.
*Partial Continuous Epilepsy. G. Wilson and N. W. Winkelman, Philadelphia.—p. 530.
*Clinical Experiments in Myotonia Congenita (Thomsen); Parasympathetic Nervous System. S. Weiss and F. Kennedy, New York.—p. 543.
*Brain Changes in Starvation. G. B. Hassin, Chicago.—p. 551.
Neuralgia of Face: Analysis of 754 Cases. C. H. Frazier and E. C. Russell, Philadelphia.—p. 557.
Paralysis of Ascending Type Due to Bite of Woodtick. P. Bassoe, Chicago.—p. 564.


**Aphasia and Apraxia.**—Two observations of metastatic tumor of the left hemisphere are recorded by Bailey in detail. They confirm the deductions which Pierre Marie and Foix have drawn from the study of war wounds of the aphasic area.

**Partial Continuous Epilepsy.**—Cases reported by Wilson and Winkelman point out that partial continuous epilepsy

may be due to microscopic lesions in the cortex. It is important to realize this possibility because pathologic study of two of the cases showed that a great many cells were unaffected, and the chances for recovery, at least to some extent, were good. When partial continuous epilepsy occurs, the natural tendency of most diagnosticians is to visualize a more or less gross lesion of the brain, such as a tumor, abscess, subdural or extradural hemorrhage. It is a well known fact that perhaps the most common cause of jacksonian epilepsy is idiopathic epilepsy, and Wilson and Winkelman believe that it is in this type of case that the so-called inside jacksonian fit often occurs.

**Myotonia Congenita.**—The observations reported by Weiss and Kennedy afford no evidence that the disease is primarily of muscular origin, but they point toward the fact that it is due to an abnormally increased activity of the parasympathetic nervous system which normally regulates the tone of striated muscles. The administration of thyroid substance and thyroxin exerted the same sensitizing action on the effect of atropin in this case that they exert on the effect of epinephrin in normal individuals. This suggests that the thyroid secretion is a sensitizing agent for both the sympathetic and the parasympathetic systems.

**Changes in Brain During Starvation.**—Hassin reports his findings in the brain of a man found in a dying condition in Odessa, South Russia. The man was of middle age, his body was swollen and cyanotic, with a number of sores on the legs. He presented a familiar "picture of death from starvation." There were no macroscopic changes in the brain. The pia mater appeared normal, showed neither opacities nor thickenings, and was easily detachable from the parenchyma. There were no changes at the base of the brain, in the ventricles, or in the size and appearance of the gray and white substances. Structural changes were absent in the nerve elements and elsewhere. The changes present, of a degenerative character, were in the form of accumulation of lipoids in the ganglion cells, glia and the blood vessels. The character of the ganglion cell changes much resembles those found in the viscera of experimental animals.

## Boston Medical and Surgical Journal

**190:** 683-732 (April 24) 1924

*Heart in Hypertension. J. P. O'Hare and W. G. Walker, Boston.—p. 683.
*Ventricular Fibrillation Following Ectopic Ventricular Tachycardia. W. D. Reid, Newton, Mass.—p. 686.
Strangulated Hernia: Thirty Cases. M. T. Field, Salem, Mass.—p. 688.
Case of Solitary Cyst of Kidney. G. G. Smith, Boston.—p. 691.
Removal of Tonsils During Acute Infection. C. T. Porter, Boston.—p. 693.

**Heart in Hypertension.**—O'Hare and Walker emphasize the point that in hypertension the heart is only one element in the general vascular disorder. It may be the object of no concern or it may be the weakest link in the entire chain. In the series of 100 cases which they studied, the average age of the patients was 55. The blood pressure ranged from 152 systolic and 76 diastolic to 290 systolic and 170 diastolic. In 28 per cent. the diagnosis of chronic myocarditis was made. In addition, cardiac symptoms were noted in a much larger number of these patients. Dyspnea was the most frequent symptom, occurring in 60 per cent. Cheyne-Stokes breathing frequently occurred as a terminal event. Another type of dyspnea, paroxysmal nocturnal smothering, occurred in thirteen patients. This symptom had no fixed relation to the height of the blood pressure, occurring with pressures as low as 160 systolic and 95 diastolic. It was much more common, however, in those with high diastolic pressures. Paroxysmal dyspnea occurred in only one patient who had precordial pain. Cardiac pain is most commonly present as a dull ache in the region of the apex and lower precordia. Typical angina occurred in only three cases. Edema of the legs was present in 29 per cent. of the series. Acute pulmonary edema did not occur in any case. Hypertrophy was found in 83 per cent. The ratio between the total width of the heart and the chest width was increased in 96 per cent. of the cases. Thirty out of fifty electrocardiograms studied showed left ventricultr preponderance; twenty-nine showed no preponderance at all, and one showed questionable right preponderance. Increase in size of the great vessels, indicated by a greater percussion dullness in the second interspace, was present in 48 per cent. In a series of fifty-seven foot plates of the heart the measurements of the great vessels were abnormal in 50 per cent. of the cases.

**Ventricular Fibrillation Following Ventricular Tachycardia.**—A case is reported by Reid in which ventricular tachycardia was followed by ventricular fibrillation. The nature of the mechanisms is discussed and it is suggested that both are due to the excitation wave traveling in a circular path through the ventricular muscle. This is said to be the first instance on record in which electrocardiograms taken from a human being have shown the sequence of ventricular ectopic tachycardia to fibrillation of the ventricles.

**190:** 733-770 (May 1) 1924

*Citrate Method of Blood Transfusion. R. Lewisohn, New York.—p. 733.
Treatment of Late Syphilis. G. A. Dix, Worcester, Mass.—p. 742.
Value of Routine Physical Examination. L. H. Spooner, Boston.—p. 746.

**Results of Transfusion with Citrated Blood.**—Lewisohn reports the results of transfusion of citrated blood in 269 cases of hemorrhage, diseases of the blood, in preoperative and postoperative cases, sepsis, incurable conditions, general debility and acute poisoning. Seventy-four patients were cured, forty-four were improved and 138 died. Lewisohn favors this method which, he says, is therapeutically as efficient as transfusion by any other method. Furthermore, no matter what method is used, the transfusion chills are of the same nature.

## Georgia Medical Association Journal, Atlanta

**13:** 155-198 (April) 1924

Operations on Stomach and Duodenum; Horsley Operation. C. Usher, Savannah.—p. 155.
Acute Medical Abdomen. M. B. Allen, Hoschton.—p. 158.
*Roentgen Ray Treatment of Impaired Hearing. J. J. Richardson, Washington, D. C.—p. 161.
Proper Use of Nonsurgical Gall Tract Drainage. G. M. Niles, Atlanta.—p. 165.
Case of Tuberculosis of Pampiniform Plexus. M. Harbin, Rome.—p. 167.
Acute Alimentary Disturbances in Children. T. D. Walker, Jr., Macon.—p. 169.
Diabetes Mellitus. P. Cheek, Gainesville.—p. 171.
Adequate Laboratory Service in Modern Hospital. W. Burdick, Denver.—p. 173.

**Roentgenotherapy of Impaired Hearing.**—In the course of the systematic examination of patients, it has been Richardson's custom to include in all appropriate instances a complete radiographic examination of the paranasal sinuses and mastoids. It frequently happened after these radiographic surveys that patients volunteered the information that their impaired hearing, which was not the trouble that brought them to Richardson, was markedly relieved. Inquiry revealed that roentgenologists have often been informed of certain visual and auditory "aura" experienced by patients undergoing radiographic exposure of the head. It was natural to infer from this that roentgenization of the auditory brain center might be essayed with hope of good results. Richardson began to use the roentgen-ray treatment in his practice, using very mild doses. From the beginning, the results were gratifying. Regardless of the character of the initial pathology provoking the deafness, many patients, who had failed to respond to other methods, found their hearing acumen improved under the new treatment. It was soon found that the radiation could be directed practically anywhere on the head, with the same betterment of hearing, clinically; a fact which suggested that the therapeutic effects noted might not depend exclusively on the stimulation of the auditory nerve center, but that possibly the nerve itself as well as the associated neural and nonneural tissues might be subject to the stimulating influences of the rays. Richardson now uses a method which consists of gentle irradiation of the head from four angles, focussing, for the sake of convenience, on the sella turcica. First, through the temporal region on the right, directing the central ray 1 inch in front and 1 inch above the external auditory meatus; second, over the occipital protuberance, with the head inclined forward; third, the left temporal region in the same manner as the right; and, finally, through the anterior fontanel, with the head inclined back-

ward. It is important to keep the quantity of energy used constant and nonfluctuating, as the best results are ensured with the use of a carefully stabilized current. Whenever examination disclosed the presence of anatomic pathology, as for example the lymphatic hyperplasia that accompanies some cases of eustachian and middle ear inflammation, it seems best to use, in addition to the small photo-electric dosage, a heavier dosage such as is known to reduce hyperplastic tissues. These applications are proportioned to the extent of the anatomic pathology revealed, and are repeated only at long intervals. Richardson emphasizes the fact that this roentgen-ray treatment must be regarded as purely adjuvant.

## Indiana State Medical Association Journal, Ft. Wayne

**17:** 101-136 (April) 1924

Chronic Adherent Pericarditis. F. A. Willius and A. R. Barnes, Rochester, Minn.—p. 101.
Foreign Bodies in Air Passages. E. L. Bulson, Ft. Wayne.—p. 103.
*Idiopathic Osteopsathyrosis. J. Rodriguez, Ft. Wayne.—p. 111.
Dacryocystorhinostomy. J. R. Gillum, Terre Haute.—p. 113.
Czerny-Kleinschmidt Butter-Flour Mixture. L. J. Wisch, Chicago.—p. 116.
Plea for Materia Medica. F. G. Jackson, Muncie.—p. 117.

**Idiopathic Osteopsathyrosis.**—In Rodriguez' case there were ten spontaneous fractures and marked deformity of the lower extremities. There was no hereditary history.

## Journal of Biological Chemistry, Baltimore

**59:** 243-527 (March) 1924

Cystin Deficiency and Vitamin Content of Lentil. D. B. Jones and J. C. Murphy, Washington, D. C.—p. 243.
*Applications of Colorimetric Phosphate Method. A. P. Briggs, St. Louis.—p. 255.
*Effect of Exercise in Diabetes. I. Changes in Acid Base Equilibrium and Their Relation to Accumulation of Lactic Acid and Acetone. H. E. Himwich, R. O. Loebel and D. P. Barr, New York.—p. 265.
Chemistry of Hemoglobin. II. Method for Study of Equilibrium Between Oxygen and Hemoglobin. R. M. Ferry, Boston.—p. 295.
*Are Guanidines Present in the Urines of Parathyroidectomized Dogs? I. Greenwald, New York.—p. 329.
Nutritive Value of Lactalbumin. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 339.
*Creatinin and Creatin in Muscle Extracts. V. Comparison of Rate of Creatinin Formation from Creatin in Extracts of Brain and Muscle Tissue. F. S. Hammett, Philadelphia.—p. 347.
Oxygen and Carbon Dioxid Dissociation Curves of Human Blood. A. V. Bock, H. Field, Jr., and G. S. Adair, Boston.—p. 353.
*Blood as Physicochemical System. II. L. J. Henderson, A. V. Bock, H. Field, Jr., and J. L. Stoddard, Boston.—p. 379.
*Effect of Insulin on Reducing Substance in Cerebrospinal Fluid of Normal Rabbits. M. Kasahara and E. Uetani, Kyoto, Japan.—p. 433.
Determination of Hydrogen Ions in Gastric Contents. J. F. McClendon, Minneapolis.—p. 437.
Carotin Principal Cause of Red and Yellow Colors in Perillus Bioculatus (Fab.); Biologic Origin from Lymph of Leptinotarsa Decemlineata (Say). L. S. Palmer and H. H. Knight, St. Paul.—p. 443.
Anthocyanin and Flavone-Like Pigments as Cause of Red Colorations in Hemipterous Families Aphididae, Coreidae, Lygaeidae, Miridae and Reduviidae. L. S. Palmer and H. H. Knight, St. Paul.—p. 451.
Polarimetric Observations on Solutions of Glucose After Contact with Intestinal Mucosa. H. V. Hume and W. Denis, New Orleans.—p. 457.
Adenosin Hexoside from Yeast. P. A. Levene, New York.—p. 465.
Walden Inversion. I. P. A. Levene and L. A. Mikeska, New York.—p. 473.
Palladium Electrodes. J. C. Andrews, Philadelphia.—p. 479.
Uniformity in Invertase Action. III. Stability of Enzyme. J. M. Nelson and R. W. E. Kerr, New York.—p. 495.

**Applications of Colorimetric Phosphate Method.**—Procedures are given by Briggs for the application of the colorimetric phosphate method of determination of various phosphorus compounds of the blood, for calcium and magnesium, and for total base.

**Effect of Exercise in Diabetes.**—Himwich, Loebel and Barr found that following short periods of vigorous exercise in the diabetic, there are changes in acid-base equilibrium somewhat greater than in normal persons doing a comparable amount of work. In the arterial blood, these are apparent in a reduction of carbon dioxid capacity, carbon dioxid tension and alkalinity.

**Tetany Not Due to Guanidin Intoxication.**—Greenwald believes that his experiments seem to offer good reason for refusing to accept, without further evidence, the idea that tetany is due to guanidin intoxication. There are two, and only two, well authenticated metabolic changes after parathyroidectomy. One is the lowered calcium content of the serum or plasma and the other is the diminished excretion of phosphorus in the urine. These must be regarded as being intimately connected with the sequence of symptoms observed. No theory of the causation of tetany can be considered adequate if it fails to take both of these into consideration.

**Creatinin Formation in Brain.**—Data are presented by Hammett which show that the rate of creatin transformation into creatinin is practically the same in extracts of brain tissue as in extracts of muscle tissue, when the two extracts are obtained from tissues from the same animal. It is, therefore, concluded that creatinin formation is not a process essentially confined to muscle tissue, but is a property of brain tissue as well. The findings are experimental support for the hypothesis of Folin that creatinin formation is a property of the total normal tissue metabolism.

**Blood as Physicochemical System.**—Henderson and his associates aim to give a complete description of the changes known to occur in blood during the respiratory cycle and of the physicochemical system which determines them.

**Effect of Insulin on Reducing Substance in Cerebrospinal Fluid.**—According to Kasahara and Uetani there is a decrease in the concentration of the reducing substance in the cerebrospinal fluid after subcutaneous administration of insulin. There is some parallelism of the concentration of the reducing substance both in the fluid and blood after the administration of insulin.

## Journal of Bone and Joint Surgery, Boston

**6:** 235-500 (April) 1924

*Possible Sequela After Operation for Removal of Internal Semilunar Cartilage. N. Dunn, Birmingham, England.—p. 237.
*Epiphyses of Bones of Extremities at Puberty. W. E. Sullivan, F. D. Geist and G. G. Muller, Madison, Wis.—p. 239.
*Operative Treatment of Old Congenital Dislocation of Hip. F. D. Dickson, Kansas City, Mo.—p. 262.
*Causes of Loose Bodies Arising from Articular Surface of Joint. D. B. Phemister, Chicago.—p. 278.
*Age Factor in Hypertrophic Arthritis. T. A. Willis, Cleveland.—p. 316.
Diseases of Blood Vascular System of Extremities. Experimental Study. B. Brooks, St. Louis.—p. 326.
*Progressive Myositis Ossificans. A. P. Mackinnon, Winnipeg, Manitoba.—p. 336.
Compound Fractures of Femur and Open Fractures into Joints. W. O. Sherman, Pittsburgh.—p. 344.
Report of One Hundred and Ninety Fractures of Femur. A. M. Shipley, Baltimore.—p. 350.
*Treatment of Claw Foot. F. W. Stuart, Birmingham, England.—p. 360.
*Mechanism of Normal Foot and of Flatfoot. D. J. Morton, Milford, Conn.—p. 368.
Loose Body Formation in Synovial Osteochondromatosis; Etiology and Pathology. H. T. Jones, Rochester, Minn.—p. 407.
*Patellapexy for Paralysis of Knee. W. G. Stern, Cleveland.—p. 459.
Evulsion of Posterior Crucial Ligament of Knee Joint. T. K. Richards, Boston.—p. 462.
Adult Torticollis; Report of Case. M. Strunsky, New York.—p. 466.
"Baseball Finger" Cured by Operation. R. Stephens, New York.—p. 469.
*Treatment of Fractures of Femur. W. H. Byford, Chicago.—p. 471.
Late Ulnar Nerve Palsy Following Elbow Fracture. W. M. Brickner, New York.—p. 477.

**Neuroma Explains Failure to Recover After Removal of Semilunar Cartilage.**—Dunn reports a case of neuroma of the patellar branch of the internal saphenous nerve and suggests that it may explain certain cases of incomplete recovery after removal of the internal semilunar cartilage. Simple excision of the scar may not be sufficient to cure the condition. Excision of the scar and evulsion of the nerve is the most satisfactory treatment.

**Studies on Epiphyses.**—Dissection of three cadavers of children from 12 to 13 were used by Sullivan et al. in this work. They discuss vascularization of the epiphyses; epiphyses as a criterion of age; multiple ossification centers and the relation of the epiphyses to the joints.

**Operative Treatment of Old Congenital Dislocation of Hip.**—Of the eight patients reported on by Dickson, five were operated on. All were unilateral cases. The results were satisfactory in four cases and the patients are leading normal lives. The fifth patient became infected, has marked limitation of motion in the hip and has derived no benefit from the operation. The procedure carried out consisted in forming a new acetabulum by turning down a flap taken from the side of the ilium just above the true acetabulum and includ-

ing that part of the ilium forming the false acetabulum found in these cases. No originality is claimed for this operation.

**Cause of Loose Bodies in Joints.**—A consideration of the evidence for and against the various theories of causation of the classical loose bodies leads Phemister to the conclusion that an entirely satisfactory explanation has not yet been offered. The lesion does not seem to be a complete intra-articular fracture. Incomplete or subchondral fracture passing between cartilage and bone or through bone is a more plausible explanation, although there are many objections to it. Articular cartilage is devoid of nerve supply and there is extremely little sensation in the cancellous bone which it overlies. It is possible that a fracture of the articular surface might result from undue violence and be accompanied by little or no pain. Such injuries would easily be overlooked or forgotten, and this would account for the frequent absence of a history of trauma of such violence as would ordinarily be considered necessary to produce such changes. Primary necrosis of the portion which becomes detached has been shown not to occur in at least a certain percentage of cases, and portions killed experimentally by radium do not slough into the joint. Arterial embolism, either fatty or bacterial, cannot be accepted as the cause, for there is no plausible reason why it should be limited to the particular regions of the ends of the bones from which the loose bodies spring. There has been no definite pathologic evidence presented in support of embolism. Constitutional disturbance of the bones may play a rôle, but not enough clinical or pathologic data are at hand to warrant classifying the zones of separation as identical with the clefts of Looser which form in the shafts in such diseases as late rickets and osteomalacia. No inflammatory changes have been observed in loose bodies and "osteochondritis dissecans" has never been observed during the stage of separation of a fragment consisting of bone and cartilage.

**Age Factor in Hypertrophic Arthritis.**—Willis' paper is based on definite bony changes consisting of new bone formation as found in a series of 625 spinal columns. The study is limited to the changes appearing in the lumbar portion of the spines. The exact amount of bone change in the various skeletons was determined by visual estimation. More or less hypertrophy was present in 364 specimens removed from persons aged from 25 to 85 years.

**Progressive Myositis Ossificans.**—In the case cited by Mackinnon the head was normal. The neck was negative except for some pencils of bone in the substance of one of the deep cervical muscles on the left side. The appearance of the back suggested the ridges on a relief map. A rod of bone about 1 inch in diameter extended from the midthoracic region to the sacrum, joining the spinous processes above, but lying behind them below. Marked atrophy of the erector spinae group of muscles was apparent. On each side the latissimus dorsi seemed to have been converted into an irregular band of bone, which extended well into the posterior axillary fold, but not to the humerus. There were narrow pencils of bone in both deltoid muscles. In the left arm a rod of bone about ½ inch wide and 3½ inches long extended from the middle of the humerus downward in the direction of the brachialis anticus muscle. A similar but smaller mass extended upward from the insertion of the triceps. The right arm, both forearms, and both hands were apparently normal. In the right thigh, laterally, were irregular plaques of bone, but most remarkable was a dense band, 1½ inches wide, extending from the os pubis to the upper part of the femur in the position of the upper margin of the abductor magnus, its density contrasting with the rarefied appearance of the femur. The left thigh showed a similar but smaller band in the adductor region, and a thick mass corresponding to the upper part of the rectus femoris. Lower down there were other but less dense masses. The upper third of each leg showed some involvement, and there was some new bone formation on the dorsum of the left foot. Both great toes showed a typical microdactylia. The heads of the metatarsal bones were irregular, and the two phalanges were fused and shortened and in the position of hallux valgus, the tip of this digit being under the middle of the second toe.

**Treatment of Claw Foot.**—Stuart performs a modification of the Steindler operation. The incision, from 1½ to 2 inches long, is made on the inner side of the foot, with its center opposite the inner tubercle of the os calcis. The skin and subcutaneous fat are separated from the plantar fascia by dissection and a periosteum elevator is inserted into the wound until its curved end is felt to pass over the outer border of the foot; the plantar fascia, muscles and periosteum are now divided, the former well back on the tuberosity of the os calcis, the latter close to its tubercles; the abductor hallucis is also divided at its origin from the internal lateral ligament. All the divided structures are now raised from the bone as far forward as the calcaneocuboid joint and the deformity corrected by hand or wrench. The wound is sutured either before or after wrenching.

**Mechanism of Flatfoot.**—Viewing flatfoot as a primary inward rotation of the os calcis, and the strains as an abnormal inward thrust of body weight in the area of astragaloscaphoid joint, a somewhat different method of treatment has been devised by Morton and tried out very successfully. It employs the principle of a right angle lever by which the body is employed as an active force to automotically resist the faulty inward thrust and displacement of the foot. A piece of light sheet metal or other rigid material is bent to a right angle; one part is placed under the heel (within the shoe) and the other portion extends upward along the inner side of the foot toward the astragaloscaphoid joint. The angular bend acts as a fulcrum. Body weight, first falling on the heel piece, immediately stabilizes the vertical extension in its position so that any tendency toward a faulty inward movement of the foot is immediately resisted. In this manner the foot is protected from all lateral strains and caused to function in its normal balanced posture without artificial support of the arch. None of the joint movements of the foot are interfered with in any way, and no compression is produced on any of the important plantar structures, since there is no contact with the under surface of the foot, except at the heel.

**Patellapexy.**—In chosen cases of infantile paralysis Stern fixes the patella to the lower end of the femur in order to stabilize the knee joint and keep the knee from flexing while bearing weight. A bed is prepared for the patella in the femur. The patella is turned around 180 degrees on its long (vertical) axis and nailed or screwed firmly to the femur. The lateral tissues are sewn over as tightly as possible to what was formerly the posterior surface of the patella, the skin closed and a cast put one with the knee in complete extension. The rotation of the patella permits an easier and more complete denudation of nonosseous tissue of the patella by working on its anterior surface—and allows of the taking up of a certain amount of "slack" in the quadriceps tendon system and also mechanically tends to keep the denuded surfaces together by the tendency of the patella to rotate back again, while if the posterior surface of the patella were used the patella would have the tendency to ride away from the surface of the femur. The operation is said to be indicated in all cases of paralysis of the quadriceps when the patient cannot walk without braces, in which the hamstrings are also paralyzed or weak, or, if the hamstrings are good, in which the knee cannot be fully extended, and in cases in which transplantation of the hamstrings has either been unsuccessful or undesirable.

**Acute Flexion of Leg on Thigh Position in Fracture of Femur.**—In a case of fracture through the lower third of the femur, Byford applied calipers to the condyles of the femur, and placed the thigh and leg on a double inclined plane splint with 35 pounds extenson applied to the calipers. At the end of a week the deformity showed no improvement. The splint was then removed and the extension changed so that the thigh was held perpendicularly to the bed. The leg then by its own weight assumed a position of acute flexion on the thigh with the foot extended. The extension of the foot relaxed the tension on the Achilles tendon and the muscles of the calf. The extreme flexion of the knee relaxed the gastrocnemius, which held the lower fragment down.

The flexion of the lower fragment of the femur being limited by the capsule and ligaments of the knee joint, and with the calipers acting as a fulcrum, the foot and leg being the heavier and longer arm, applied positive upward pressure to the lower fragment. Reduction was accomplished in three days of this position.

## Maine Medical Association Journal, Portland

**14:** 183-200 (April) 1924

Health Program in Maine Schools. A. O. Thomas.—p. 183.
For Better Health. C. F. Kendall, Augusta.—p. 185.
Division of Social Hygiene. G. H. Coombs.—p. 188.
How Maine "Teams Up" for Health. W. D. Thurber.—p. 189.

## Michigan State Medical Society, Grand Rapids

**23:** 191-224 (May) 1924

Essential Interdependence of Medicine and Nursing. H. Cabot, Ann Arbor.—p. 191.
Practical Significance of Function and Anatomy of Base of Cranium and Cranial Nerves in Otology, Ophthalmology and Rhinology. C. F. McClintic, Detroit.—p. 194.
Industrial Medicine. A. M. Shaeffer, Jackson.—p. 204.
*Treatment of Advanced Cancer of Uterus with Heat and "Starvation Ligature." G. van A. Brown, Detroit.—p. 206.
Intrathoracic Goiter. S. Levin, Houghton.—p. 208.
*Early Diagnosis of Pregnancy: Phlorizin Test. L. W. Haynes, Detroit. —p. 215.

**Heat and Starvation Treatment of Cancer of Uterus.**—The so-called "starvation treatment" of advanced cancer of the uterus consists in ligation of the internal iliac, the ovarian, and where deemed necessary, the mediosacral arteries. The ligation is applied to lessen the nutrition of inoperable new growths, thus checking their further development and often causing their disappearance. Since the malignant cells are five times more vulnerable to heat than normal cells, cutting down the blood supply by ligature still further lessens it by sealing the smaller vessels with heat, and also, through the heat producing an increase of connective tissue which further protects against the ingress of the malignant cells. Brown uses the Percy cautery. In a series of eighteen patients, there was no immediate mortality. Of these every one showed improvement locally. One died later of sepsis. One, in whom ligation was not done but in whom heat was used following incomplete operation, improved locally and in general health. Eleven of the eighteen patients are living. In six of the eighteen, operation is too recent to draw any conclusions. Of the other twelve patients, all but one for a time showed improvement both locally and in general health. Five are alive and well with no subjective or objective evidence of return.

**Phlorizin Test for Pregnancy.**—Haynes reports twenty cases in which he used the Kamnitzer and Joseph test. Seemingly healthy nonpregnant women gave negative results with this test. Women pregnant less than twelve weeks and probably sixteen weeks, as a rule gave positive results with the test.

## Missouri State Medical Association Journal, St. Louis

**21:** 137-172 (May) 1924

*Chicken Blood and Serum in Pneumonia in Children. H. C. Berger and J. G. Montgomery, Kansas City.—p. 137.
Fractures of Femur. H. E. Pearse, Kansas City.—p. 139.
Cervical Rib. Seven Cases. W. A. Myers, Kansas City.—p. 146.
Amblyopia Following Epistaxis in Thromboplastic Purpura. L. Post, St. Louis.—p. 152.

**Chicken Blood Protects Against Pneumococci.**—Berger and Montgomery present the results of work with laboratory animals and with children in whom pneumonia was treated with the blood or serum of fowls, mostly chickens. The normal chicken serum, when not too old, afforded a high degree of protection; when reasonably fresh, it gave complete protection against an infection which killed the control animal in twenty hours. The aged normal human serum in some instances showed a considerable degree of protection. The protection afforded by the other serums used was negligible. The preservation of normal chicken serum with tricresol renders it valuable for clinical purposes for long periods of time. The dosage seemed to have little influence as the smallest dose of serum used was probably sufficient to furnish the available protection. The authors believe that there is present in the normal chicken serum a protective substance against the pneumococcus of each of the three types. This protective substance is not an agglutinin. The protection afforded by chicken serum is inversely proportional to the period of time elapsing between infection and administration of the serum.

## Ohio State Medical Journal, Columbus

**20:** 265-344 (May) 1924

Puncture of Cisterna Magna in Children. J. G. Kramer, Akron.—p. 269.
Perforation of Ulcer of Stomach. A. S. McKitrick, Kenton.—p. 271.
Carcinoma of Stomach. J. L. DeCourcy, Cincinnati.—p. 272.
*Treatment of Pertussis. W. F. Drake, New Lexington.—p. 273.
*Cure (Root Section) for Trigeminal Neuralgia. W. T. Coughlin, St. Louis.—p. 274.
Acute Otitis Media in General Practice. A. L. Stotter, Cleveland.—p. 276.
*Epidemic Jaundice: Report of Twenty-Eight Cases. W. A. Whitman, Columbus.—p. 278.
Nurse in Public Health Work. E. G. Fox, Washington, D. C.—p. 280.

**Ether Treatment of Pertussis.**—Drake reports several cases of pertussis in which the intramuscular injection of ether was followed by very good results. The duration of the disease was reduced to an average of three and one-half weeks; the number of paroxysms was reduced by one-half after the first injection, and the whoop disappeared usually before the end of three weeks. Vomiting ceased after one or two injections. Serious complications were aborted, and in cases seen late, with bronchitis and bronchopneumonia, the affection was aborted in a few days.

**Gasserectomy for Tic Douloureux.**—In twenty-three cases of tic douloureux, Coughlin has cut the sensory root of the Gasserian ganglion inside the skull between the ganglion and the brain with complete success. The operation was first performed by Frazier. All the patients are alive and well.

**Epidemic Jaundice.**—In the twenty-eight cases observed by Whitman, the onset was insidious with no increase in temperature, until about the time jaundice occurred. The temperature would rise from one-half to one and one-half degrees. The other symptoms were: marked lassitude, loss of appetite, slight mental depression and abdominal pain about three constant points. These points of pain were present at one or all of the following locations: McBurney's point; a similar point on the left, and at about one inch below the xiphoid in the midline. In a few cases there was slight muscular rigidity, this symptom lasting usually from four to seven days after jaundice was noticeable. Bile was always detected in the urine before jaundice was noticeable in the skin or sclera. Jaundice occurred for only ten days in the case of the shortest duration and for forty-nine days in the case of longest duration. The average duration was twenty-seven days. Many of the men gave positive histories of having been bitten by bedbugs. The injection of 5 c.c. of blood from icteric patients, into the abdominal cavity of three male rabbits, caused jaundice in two of the rabbits. It was most noticeable in the sclera and skin of the ears. The rabbit which did not develop jaundice had been inoculated with blood from a very mild case of jaundice. The laboratory report indicated that out of fifteen blood specimens submitted, in only two were many motile organisms, spirochetal in character but more sluggish than spirocheta pallida, found. These two specimens gave strongly positive Wassermann reactions. Guinea-pig inoculations in fifteen cases produced no symptoms of infection. One animal died; it was impossible to demonstrate microscopically or culturally any spirochete in this case.

## Public Health Journal, Toronto

**15:** 145-192 (April) 1924

Disease at St. Paul's Bay: Syphilis. W. R. Riddell.—p. 145.
Story of Hamilton Health Association. J. H. Holbrook.—p. 158.
Teacher as School Physical Inspector. R. George.—p. 165.
Production of Pure Milk. A. R. White.—p. 170.

## South Carolina Medical Association Journal, Greenville

**20:** 91-114 (April) 1924

Case For and Against Coffee. G. M. Niles, Atlanta, Ga.—p. 93.
Obligation as Physician and Citizen. D. N. W. Grant.—p. 96.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

1: 653-696 (April 12) 1924

*Hyperplasia of Breast Tissues: Mazoplasia. G. L. Cheatle.—p. 653.
*Kinks of Surgical Importance. A. E. Webb-Johnson.—p. 655.
*Tuberculosis of Breast. N. Raw.—p. 657.
*Hematemesis "Without Lesions." G. Monod.—p. 658.
Concurrent Vicious Circles. J. B. Hurry.—p. 660.
Roentgen-Ray Treatment of Hyperthyroidism. C. W. S. Saberton.—p. 661.
*Antidote for Arsenic, Bismuth and Mercury Poisoning. H. C. Semon.—p. 662.
Slipping Rib. E. N. Russell.—p. 664.
Repair of Recurrent Inguinal Hernia by Gauze Filigree. D. O'Donovan.—p. 664.
Discharge of Ascaris Lumbricoides Through Appendicitis Scar. A. S. Cook and D. G. C. Tasker.—p. 664.
Xanthoma Diabeticorum. M. Azer.—p. 665.
Rheumatism and Erythema Nodosum. R. Anderson.—p. 665.

**Mazoplasia.**—The single word offered by Cheatle in place of hyperplasia of breast tissue is mazoplasia. He describes the various forms of hyperplasia of breast tissues: (1) desquamative hyperplasia of epithelium lining ducts and acini; (2) permanent duct and acinus cysts; (3) character of papillomas, and (4) nondesquamating epithelial hyperplasia. Cheatle regards this last division as a cystic condition, and insists that these cysts are dangerous and that the breast containing them should be removed. His opinion is that usually at some point or other they infiltrate surrounding tissues; hence it should be regarded as part of the process of carcinoma. It affects duct and acinus in combination. The duct epithelium also becomes markedly papillomatous as well as lactiform. Cheatle suggests that when surgeons say that "chronic mastitis" is never a prelude of carcinoma, it is possible they do not realize that the clinical signs on which they diagnose "chronic mastitis" include several totally different pathologic changes. As a rule, these breasts contain small cysts in which the epithelium is active, and Cheatle maintains that even breasts containing big cysts ought to be removed, because he has specimens in which totally unsuspected carcinoma and papillomas were found. The existence of papillomas can be diagnosed by a careful examination of the ampulla and ducts of breasts. Very often one ampulla can be felt enlarged and painful, manipulation of which gives rise to a discharge of blood from the nipple. The duct leading from the tumor containing ampulla is irregularly enlarged and convoluted. Cheatle's opinion is that the existence of one multiradicular papilloma of the breast is so rare that these signs justify the removal of the whole breast and axillary glands.

**Kinks of Ureter and Gastro-Intestinal Tract.**—Webb-Johnson discusses kinks of the ureter and of the gastro-intestinal tract. He also reprimands surgeons whose extreme conservatism leads to failure to accept clinical evidence because it is new. This he considers a kink of surgical judgment.

**Tuberculosis of Breast.**—In thirty years, Raw has seen only seven cases of proved tuberculous mastitis—four in the female and three in the male. They were all carefully investigated, and animal inoculations proved them to be tuberculous. In no case has tuberculous mastitis been associated with primary pulmonary tuberculosis. Tuberculosis of the breast is always caused by the bovine bacillus. It is the result of lymphatic extension from the glands of the neck or axilla (excepting in the rare cases of general miliary infection). In common with all other forms of surgical tuberculosis caused by the bovine bacillus, it responds readily to treatment by a tubercle vaccine prepared from an attenuated culture of human tubercle bacilli. The treatment must, however, be continued for a long period until an active immunity is established.

**Hematemesis Without Apparent Lesions.**—Monod reports three cases in which gastric or duodenal ulcer was diagnosed but was not found at operation. In two cases there was oozing from, perhaps, microscopic erosions. In the third case the bleeding was from congestion due to duodenal stenosis. The theories advanced to explain this bleeding are discussed: disturbance of the normal reaction of the general nervous system on the visceral system; irritation of the sympathetic vasomotor centers in the tractus intermediolateralis of the medulla, or of the nerve ganglions or nerve endings, and hepatism.

**Antidote for Arsenic, Bismuth and Mercury Poisoning.**—Semon draws attention to the value of intravenous injections of from 0.45 to 0.9 gm. of sterile solutions of chemically pure sodium thiosulphate in combating the toxic effects of these drugs.

### British Journal of Medical Psychology, London

4: 1-83 (April 9) 1924

Psychologic Atonia and Asthenia. P. Janet.—p. 1.
Progress of Individual Psychology. A. Adler.—p. 12.
Primitive Mentality and Unconscious. H. G. Baynes.—p. 32.

### International Journal of Psycho-Analysis, London

5: 125-267 (April) 1924

Infantile Genital Organization of Libido. S. Freud.—p. 125.
Compensation as Means of Discounting Motive of Repression. V. Tausk.—p. 130.
Study of Resistance. T. Reik.—p. 141.
Polyphallic Symbolism and Castration Complex. J. C. Flügel.—p. 155.

### Journal of Oriental Medicine, Dairen, Manchuria

2: 1-123 (Feb.) 1924

Trematode Disease in Orient. W. W. Cort.—p. 1.
Life Cycle of Ascaris Lumbricoides and Related Forms. W. W. Cort.—p. 7.
Control of Hookworm Disease. W. W. Cort.—p. 12.
Influence of Medicaments on Velocity in Sedimentation of Erythrocytes. S. Hara.—p. 21.
*Meningeal Cases of Infant Beriberi. T. Suzuki and S. Mori.—p. 30.
*Serous Meningitis in Infants From Lead Poisoning. T. Suzuki and J. Kaneko.—p. 55.
Case of So-called Porokeratosis Primarily Affecting Glans Penis and Mucous Membrane of Mouth. H. Yanagihara and K. Sakamoto.—p. 67.
Constituents of Allium Scorodoprasum L. J. Kurosawa.—p. 84.
Substances in Rice Polishings Effective in Treating Sick Pigeon Fed Polished Rice. T. Ikeda.—p. 90.
Schick Tests on School Children. K. Nakadate.—p. 102.
Pathology of Pigmentation of Bulbar Conjunctiva in Xerosis Epithelialis Conjunctivae. S. Mori.—p. 103.
Chemistry of Toxin Produced by Welch-Fraenkel Bacillus. F. Hirayama.—p. 105.
Intensive Infiltration of Eosinophil Leukocytes in Uterus of White Rats. E. Homma.—p. 107.
Comparative Study of Hyperglycemia Caused by Caffein, Theobromin and Theocin. H. Senga.—p. 109.
Blood Sugar Content in Several Regions of Vascular System in Experimental Hyperglycemia and Glycosuria. H. Senga.—p. 110.

**Meningeal Cases of Infant Beriberi.**—Suzuki and Mori discuss that type of infant beriberi in which the psychic and nervous symtoms are prevalent. They term this the meningeal type of beriberi. The fourteen cases analyzed represent about 13.8 per cent. of the total number of cases of beriberi observed. There were in this group seventy-six cases of the cardiac type, seventeen cases of the paralytic type and three cases of the dropsical type. In nine of the fourteen cases the disease was recognized in the mother. Seven of the cases were seen during the summer months; none occurred during November, December or January. Four of the cases were fatal, a mortality of 28.4 per cent. The most frequently occurring initial symptoms were emaciation, vomiting, dimness of vision, ptosis, cough and diarrhea. Ptosis was a cardinal symptom in all the cases; dimness of vision and distended abdomen in 92.3 per cent.; irregular movements of limbs, palpitation of the heart and enlargement of the liver in 85.2 per cent. Analysis of the spinal fluid in this type of beriberi disclosed no sign of inflammation, except a slight trace of globulin, and in one case only there was a slight increase in cells. At the necropsy in one case dropsy and stasis of the meninges were found and these the authors believe to be the cause of this type of beriberi.

**Serous Meningitis in Infants From Lead Poisoning.**—Serous meningitis in infants has long been observed in Japan. The causes were widely disputed, and no adequate reasons could be assigned. It was, for the most part, prevalent during the summer months. Ordinarily it commenced with vomiting and diarrhea accompanied by greenish-black stools; then followed meningitis and convulsions, about a dozen a day.

The mortality was high. In 1923, Hirai discovered that the disease was due to lead poisoning from white powders employed by young mothers as a cosmetic for the skin. Suzuki and Kaneko report two typical cases of serous meningitis in children which were found to be caused by a face powder containing white lead. Some of the white paste which had been used by the mothers of these patients was given in milk to two young puppies. After two days they began to vomit and have diarrhea stools. One puppy died after seven days, and at the postmortem examination, six bean-sized oval-shaped ulcers were found in the duodenum. The other lived one month.

## Lancet, London

**1:** 787-834 (April 19) 1924

Foreign Bodies in Bronchi. T. McCrae.—p. 787.
*Wasting Disorders of Early Infancy. L. G. Parsons.—p. 793.
Diphtheria Outbreaks in Institutions. C. C. Okell, A. J. Eagleton and R. A. O'Brien.—p. 800.
Temporary Color Blindness. F. W. Edridge-Green.—p. 801.
Two Cases of Congenital Deformities of Hands and Feet. N. F. Smith.—p. 802.
Rhinosporidium Seeberi in Malabar Woman. T. S. Tirumurti.—p. 802.
Splint for Fracture of Femur. G. Sacks.—p. 808.

**Wasting Disorders of Early Infancy.**—The theory and facts of infantile atrophy are summarized by Parsons as follows: An infant after thriving normally commences to lose weight for one or more causes, such as insufficient or unsuitable food, diarrhea and vomiting, infection, hygienic surroundings or prenatal influences and constitutional causes. Many of these children can and do absorb a larger amount of fat per kilogram of body weight than normal children usually do but a high fat dietary may cause fat indigestion, and with diarrhea, however produced, there is diminished fat absorption. Calcium absorption is usually very good if a sufficient supply of fat and calcium is present in the food; indeed, many of these children absorb more calcium per kilogram of body weight than normal children usually do; but in a poor fat or calcium dietary the absorption is not good. There is, however, in many cases faulty salt metabolism, which may result in low retention values for calcium. Protein metabolism is also faulty. The absorption of protein is normal; protein indigestion is a rare condition and has only been seen where there has been a large protein intake over a considerable period. The metabolic disturbance is essentially an abnormal salt and protein metabolism, resulting in poor retention values for mineral salts and nitrogen.

**1:** 835-886 (April 26) 1924

*Cardiac Efficiency. J. Meakins.—p. 835.
Foreign Bodies in Bronchi. T. McCrae.—p. 838.
*Mental States in Alcoholism. B. Pierce.—p. 841.
*Scarlet Fever Otitis. E. H. R. Harries and F. B. Gilhespy.—p. 843.
Organic Arsenic Compounds in Pulmonary Tuberculosis. J. Guy and G. B. Page.—p. 845.
Two New Swab Forceps. R. L. Spittel.—p. 852.
Treatment of Earache. T. B. Layton.—p. 862.

**Cardiac Efficiency.**—A general law applicable to all functioning tissues of the body is promulgated by Meakins. Briefly stated it is as follows: If an organ be performing its work with difficulty, a gradual deterioration will occur if this increased demand be persisted in. On the contrary, if the work demanded of a diseased organ be less than its capacity at the moment, a certain degree of restoration of function will ensue. This law points to one of the cardinal principles in the treatment of cardiac deficiency. When the myocardium is suffering from any abnormal blood supply or mechanical handicap and shows signs of failing under the burden, it should be placed as near as possible in an absolutely resting condition, in order that it may have an opportunity of regaining some of its lost reserve.

**Mental States in Alcoholism.**—Pierce reviews the alcoholic psychoses, the effect of a single dose of alcohol on inhibition and on instinct. He suggests that the primary influence of alcohol is on the vegetative nervous system. That it produces a dilatation of the peripheral vessels is well known, and possibly it also acts on the nervous mechanisms involved in the expression of the emotions, including the endocrine organs. But where so much is vague and uncertain it is difficult to draw conclusions. Until more is known of the physiology of the nervous system and its relation to instinct, it will be impossible to speak with confidence on the mental action of alcohol.

**Scarlet Fever Otitis.**—Of 100 consecutive cases of ear discharge in elementary school children under 14 years of age, it was found by Gilhespy that in 18 per cent., measles, and in 19 per cent., scarlet fever was stated by the parents to be the starting point of the disability. Among 3,684 cases of scarlet fever examined by Harries and Gilhespy, there were 280 cases of otitis. The greatest number of cases occurred between the ages of 5 and 10 (7.8 per cent.), but of the children up to 5 years of age, 15.4 per cent. developed otitis—a percentage incidence twice as high as the 5 to 10 year group, and approximately four times as high as in either of the remaining age groups. The percentage incidence of all ages was 7.6. Treatment of the nasopharynx by douching is condemned as productive of more untoward complications than good. Surgically, two indications are manifest in dealing with the infection of the middle ear: (1) removal of the initial focus of infection—as the adenoids or tonsils; (2) release of the pent up secretions of the middle ear, i. e., paracentesis of the drumhead.

## Medical Journal of Australia, Sydney

**1:** 251-276 (March 15) 1924

*Acute Cardiac Failure Showing Flutter and Incomplete Right Bundle Branch Block; Recovery. W. N. Horsfall.—p. 251.
*Gastro-Enterostomy: Its Mechanism and Production of Pain in Duodenal Ulcer. F. L. Apperly.—p. 256.
Meckel's Diverticulum with Umbilical Polyp. E. M. Fisher.—p. 263.

SUPPLEMENT

Epidemic Encephalitis. J. B. Cleland.—p. 89.
Urology as Applied to Children. G. Craig.—p. 91.
After-Treatment, Complications and End-Results of Prostatectomy. B. Kilvington.—p. 98.
Factors of Safety in Prostatectomy. S. H. Harris.—p. 101.
Renal Insufficiency; Its Importance in Genito-Urinary Surgery. R. J. Silverton.—p. 106.
Diagnostic Methods in Hydatid Disease. H. R. Dew and F. Williams.—p. 113.
Drainage Tube in Operations on Hydatid Cysts. W. J. S. McKay.—p. 118.
Factors in Surgical Treatment of Hydatid Disease. B. T. Zwar.—p. 119.
Hydatid Disease of Tibia. A. A. Lendon.—p. 122.
Postural Influence of Sympathetic Nervous System. J. I. Hunter.—p. 124.
Treatment of Spastic Paralysis. N. D. Royle.—p. 125.

**Acute Cardiac Failure with Right Bundle Branch Block.**—A case of extreme heart failure with congestion is described by Horsfall. Electrocardiograms showed auricular flutter and an incomplete right bundle block. Reasons are advanced in support of this interpretation. The patient recovered and reverted to a normal cardiac rhythm. The condition of incomplete right bundle block persisted.

**Results of Gastro-Enterostomy.**—Among patients presenting definite gastric or duodenal ulceration, from whom late reports have been received by Apperly, gastro-enterostomy gave a complete cure in 63 per cent., improvement in 31 per cent. and failure in 6 per cent. of cases.

**1:** 301-326 (March 29) 1924

Glycosuria and Diabetes. G. E. Rennie.—p. 301.
Retrodisplacement of Uterus: Treatment. H. H. Schlink.—p. 307.
Medicolegal Note on Cut Throat. J. A. Goldsmid.—p. 311.
*Method of Operating on Strangulated Umbilical Hernia. A. S. Vallack.—p. 312.
Case of Congenital Absence of One Kidney. R. Southby.—p. 312.

SUPPLEMENT

Gastroptosis. L. M. McKillop.—p. 154.
Arthritis Deformans from Orthopedic Standpoint. L. G. Teece.—p. 157.
Structure and Function of Ileocecal Valve. A. H. Rutherford.—p. 159.
Enlarged Glands of Groin Occurring During One Year on Shipboard. W. J. Carr.—p. 161.
Relation of Inferior Thyroid Artery to Recurrent Nerve. C. H. C. Searby.—p. 162.
Anatomy of Procidentia Uteri. F. A. McGuire.—p. 167.

**Herniotomy for Umbilical Hernia.**—Vallack excises the sac with the overlying skin, and in repairing the opening overlaps the fascia from above downward.

## South African Medical Record, Cape Town

**22:** 113-136 (March 22) 1924

Use of Pneumococcal Vaccine. S. Lister.—p. 115.
Diet in Relation to Health and Disease in Tropics and Subtropics. D. M. MacRae.—p. 122.

## Archives des Maladies de l'App. Digestif, Paris

14: 197-292 (March) 1924

*Megaduodenum. P. Duval.—p. 197.
*Ileus from Gallstone in Intestine. Bonnecaze and Le Chaux.—p. 201.
Scirrhus of Small Intestine. Baillat.—p. 218.
Brunner's Glands in Stomach. L. Lamy.—p. 238.

**Megaduodenum.**—Duval reviews the literature and concludes that idiopathic dilatation of the duodenum is possible. The dilatation usually affects also a part of the jejunum.

**Ileus from Gallstone in Intestine.**—Bonnecaze and Le Chaux observed two patients with ileus from large gallstones obstructing the bowel. The obstruction is usually chronic. A stool may pass after a cathartic, but the symptoms return. A tumor may be felt under general anesthesia. The mortality with medical treatment is about 50 or 60 per cent. The operative results are about the same. It is probable that the prognosis with earlier intervention would be better. Multiple obstruction from several stones may occur. Diarrhea may cause the death of the patient even after extraction or expulsion of the stone.

## Archives de Médecine des Enfants, Paris

27: 193-256 (April) 1924

*Epidemic Meningitis. K. Lewkowicz.—p. 193. Conc'n.
Gumma on Humerus and Pseudoparalysis. G. Mouriquand and M. Bernheim.—p. 228.
Meningeal Form of Poliomyelitis. T. Reh.—p. 235.
Alimentary Anaphylaxis. J. Comby.—p. 239.

**Antiserum Treatment of Epidemic Meningitis.**—From a series of twenty-five observations, Lewkowicz concludes that the real seat of pernicious cerebrospinal meningitis is not the subarachnoid space, but the ventricle. This is obvious from comparison of the anatomic structures. Meningococci thrive on epithelium of which they find plenty in the ventricles. Beside this, the ventricles contain the richly vascularized choroid plexus, which acts as an infection conveyor. On the other hand, the leptomeninges proper do not contain blood vessels. Death usually occurs from cerebral edema due to internal hydrocephalus incarcerating the brain. In spontaneous healing, the neutrophil leukocytes probably are the main mechanical factors in removing the cocci from the infective focus. Basophils and eosinophils probably contribute to the production of specific antibodies, since they are absent in grave cases. As a logical consequence of these premises, the antiserum should be injected directly into the posterior horn of the lateral ventricle. The results are encouraging. He asserts that a walled-off meningococcus meningitis, independent of the ventricles, has never been known. Also that the amount of antibodies in the ventricles decides the outcome of the case.

## Bulletins de la Société Médicale des Hôpitaux, Paris

48: 469-530 (April 4) 1924

Amaurosis from Carbon Monoxid Poisoning. Lévi-Valensi.—p. 470.
*Gummatous Form of Tuberculosis. Lemierre and Kindberg.—p. 472.
*Treatment of Epidemic Encephalitis. Rathery and Gournay.—p. 484.
Skin Gangrene After Carbon Monoxid Poisoning. Idem.—p. 486.
*Complete Heart Block. M. Leconte.—p. 488.
*Treatment of Chronic Purpura. A. Ricaldoni and Albo.—p. 493.
Treatment of Asthma. Petzetakis.—p. 502.
Stenosis of Pulmonary Artery. C. Laubry and P. Oury.—p. 507.
Serotherapy of Gonococcus Endocarditis. Aubertin and Gambillard.—p. 512.
*Liver-Kidney Syndromes. G. Parturier.—p. 518.
Artificial Pneumothorax in Children. Armand-Delille et al.—p. 519.
*Arteries in Diabetics. M. Labbé and H. Lenfantin.—p. 522.
Asynergy in Liver Insufficiency. Fiessinger and Walter.—p. 524.

**Gummatous Form of Tuberculosis.**—Lemierre and Kindberg describe the development of multiple tuberculous gummas in a young man. The affection started with a skin infection on the foot, and spread. The pus did not contain tubercle bacilli, which were found only in the tissue. The patient died from miliary tuberculosis the fourth month.

**Treatment of Epidemic Encephalitis.**—Rathery and Gournay confirmed in one case of encephalitis the beneficial effects of intravenous injections of sodium salicylate. Daily injections of 2.5 gm. in 75 c.c. of water were necessary. The drug was without effect when taken by mouth.

**Complete Heart Block.**—Leconte describes a case of complete auricular-ventricular dissociation in a girl 3 years of age.

**Treatment of Chronic Purpura.**—Ricaldoni and Albo extirpated the not enlarged spleen in two young women suffering from menorrhagia and purpura, recurring with menstruation. The patients recovered.

**Liver-Kidney Syndromes.**—Parturier found slight albuminuria or granular casts in the urine of 15 per cent. of his patients with disturbances of the liver.

**Arteries in Diabetics.**—Labbé and Lenfantin consider the roentgen-ray examination of peripheral arteries as very useful for revealing a latent arteriosclerosis in diabetics. The prognostic significance of these shadows cast by the arteries is small.

## Comptes Rendus de la Société de Biologie, Paris

90: 829-908 (April 4) 1924. Partial Index

*Action of Iron on Tubercle Bacilli. Frouin and Guillaumie.—p. 831.
*Striated Muscle in Polarized Light. J. Nageotte.—p. 832.
*Spleen Under Nerve Stimulation. Tournade and Chabrol.—p. 835.
Sex Characters of Frogs. C. Champy.—p. 838.
Honey Test of Liver Function. Fiessinger and Walter.—p. 840.
*Intermittent Function of Liver. Fiessinger and Walter.—p. 841.
Immunization of Caterpillars. N. Ishimori.—p. 843.
*PH of Duodenal Contents. M. Labbé et al.—p. 845.
Cholesterol in Duodenal Contents. M. Labbé et al.—p. 847.
Anthrax in White Rats. I. Hababou-Salz.—p. 849.
Purification of Insulin. A. Boivin et al.—p. 853.
Embryology of the Eye. M. Caudière.—p. 855.
Typhoid Keratitis. J. Sédan and R. Herrmann.—p. 857.
Chronic or Retarded Anthrax? S. Costa et al.—p. 859.
Typhoid Panophthalmia. J. Sédan and R. Herrmann.—p. 861.
Micrococcus Arthriticus in Rheumatism. Costa and Boyer.—p. 862.
*Precipitin Diagnosis of Typhoid. S. Costa et al.—p. 865.
Vaccination Against Mouse Typhoid. Balteanu and Tudoran.—p. 867.
Susceptibility of Tissues to Experimental Anthrax. C. Cernaianu and C. S. Suhatzeanu.—p. 869.
*Spontaneous Trypanosomiasis in Monkeys. C. Chagas.—p. 873.
Conservation of Rabies Vaccine. N. Botafogo Gonsalves.—p. 876.
*PH and Action of Bacteriophages. J. da Costa Cruz.—p. 878.
*Colloids and Immunity. G. Pacheco.—p. 879.
Counting of Blood Platelets. S. Petri.—p. 881.
PH of Gastric Contents. A. Norgaard.—p. 884.
Vaccine Treatment of Typhoid. V. Bie.—p. 886.
Chemotherapy of Tuberculosis. L. E. Walbum.—p. 888.
Lipoid Granules in Protozoa. J. Hirschler.—p. 891.
Staining the Golgi Apparatus Black. J. Hirschler.—p. 893.
Metamorphosis of Tadpoles. K. Sembrat.—p. 894.
Polyembryony in Insects. Noskiewicz and Poluszynski.—p. 896.
*The Lymph in Hemoclasis. Kmietowicz and Kosakowski.—p. 898.
Supernumerary Periclavicular Muscle. A. Bant.—p. 900.
Aeromioclavicular Muscle. A. Bant.—p. 902.
Cells of Choroid Plexus. E. B. Kalwaryjski.—p. 903.
Clearing Histologic Sections. B. E. Kalwaryjski.—p. 904.
*Prototoxins. M. de Gedroyc.—p. 905.
Action of Lymph of Insects on Hydrophobia Virus. Id.—p. 906.
*Protozoa Protecting Against Bacilli. Idem.—p. 907.

**Action of Iron on Growth of Tubercle Bacilli.**—Frouin and Guillaumie attribute the favorable action of salts of iron on the growth of tubercle bacilli to a better utilization of glycerol.

**Striated Muscle in Polarised Light.**—Nageotte was able to utilize for polarization sections of muscles stained with Mallory's phosphotungstic hematoxylin when red light was used. He discusses the possible sources of error.

**Contraction of Spleen Under Nerve Stimulation.**—Tournade and Chabrol conclude that the contraction of the spleen following the stimulation of the splanchnic nerve is due both to a direct action of the nerves and to an increase in epinephrin output.

**Intermittent Function of Normal Livers.**—Fiessinger and Walter examined two-hour specimens of urine from healthy subjects. They found a marked variation in the amount of urobilin and biliary acids (the latter determined by stalagmometry) excreted. The more concentrated portions contained more of these substances, but the differences were evident even when the specimens were brought up to the same specific gravity. When a subject took 150 gm. of honey at 8 a. m., they frequently observed glycosuria at 10, no sugar at noon, positive reaction at 4 p. m., then a negative reaction, but renewed glycosuria the next morning at 8 a. m. They believe that the liver in healthy subjects has an intermittent

functional rhythm with intervening periods of actual insufficiency.

**$P_H$ of Duodenal Contents.**—Labbé, de Moor and Nepveux determined the hydrogen ion concentration in the bile obtained by the Meltzer-Lyon technic. It was lowered in infected cases. This lowering seemed to be due to the production of organic acids by the micro-organisms.

**Precipitin Diagnosis of Typhoid.**—Costa, Boyer and Jaur mixed three-weeks old filtered bouillon cultures of typhoid bacilli with gelatin. Serum from twenty typhoid patients produced a precipitate on the surface of the gelatin in eighteen to twenty-four hours. All other serums were negative.

**Spontaneous Trypanosomiasis in Monkeys.**—Chagas found *Tryponosoma cruzi* in some monkeys from Pará. He produced with this trypanosoma a typical myocarditis in young dogs.

**$P_H$ and Action of Bacteriophages.**—Da Costa Cruz produced a reversible flocculation of Flexner bacteriophages in mediums with a $p_H = 6.09$. Stronger acids ($p_H = 2.9$) destroy the bacteriophage action. He does not believe that bacteriophages are living organisms.

**Colloids and Immunity.**—Pacheco injected guinea-pigs under the skin of the abdomen with a weak diphtheria toxin and simultaneously injected colloidal metals under the skin of the chest. The colloid metal salt lowered the natural immunity of the animals.

**Influence of Lymph in Hemoclasis.**—Kmietowicz and Koskowski made a fistula in the thoracic duct in dogs, and thus diverted the lymph. Then they induced a hemoclastic crisis. The fistula prevented the appearance of lymphocytosis and of lowering of the refraction index of the blood.

**Prototoxins.**—Gedroyc obtained a specific thermostable toxic and lytic serum from rabbits inoculated with flagellate protozoa.

**Protozoa Protecting Against Bacilli.**—Gedroyc found that parameciums destroyed the virus of hydrophobia in twenty-four hours. An injection of the mixture in rabbits had protective value.

## Encéphale, Paris

**19:** 145-208 (March) 1924

*Dementia Praecox. H. Claude et al.—p. 145.
The Delusion of Feeling Influenced. A. Ceillier.—p. 152.
Psychopathology and General Pathology. A. Maeder.—p. 163.
Simplified Test for Loss of Neutrality Balance. G. E. Schroeder.—p. 178.
Arrest of Acute Delirium After Large Dose of Silver Salt. H. Damaye.—p. 184.

**Analysis and Delimitation of Dementia Praecox.**—Claude, Borel and Robin emphasize the fact that all forms of schizophrenia are not identical with true dementia praecox. Three stages can usually be observed in the development of the disease: first, Kretschmer's schizoid predisposition—not a pathologic condition; then, after certain exciting causes, comes a period of schizomania—that is, losing touch with reality by living an introverted, autistic life. This is followed by a "dislocation" of psychic functions, in which an entire maladaptation of the individual occurs. This stage may be considered real dementia with total disintegration of the intellectual, emotional and volitional spheres. It should, however, be differentiated from the preceding stage of schizomania in which only the higher synthetic functions are lost. The course may be rapidly progressive from the first, or the third stage may not develop until late in life, or never.

## Gazette Hebd. des Sciences Médicales, Bordeaux

**45:** 225-240 (April 13) 1924

*Bronchial Spirochetosis. E. Cassaët et al.—p. 226.
Recent Research on Beriberi. C. Massias.—p. 228.

**Bronchial Spirochetosis.**—Cassaët, Bonnin and Guénard conclude from the lack of any general reaction to the bronchial spirochetosis that treatment will have to be directly local. In the case described all general treatment has failed to date, including arsenicals, antimony, iodids and balsams. Aside from the cough, all the symptomatology is in the spit cup. The thin transparent, reddish sputum contains very few erythrocytes; there is hemoglobinoptysis rather than hemoptysis. There seems to be an intense hemolytic action, and the spirochetes swarming in the sputum are liable to be all destroyed by the same lysant action if there is any delay in examining the sputum. A fusiform bacillus was found constantly with the Castellani spirochetes, but in smaller numbers.

## Gynécologie et Obstétrique, Paris

**9:** 253-332 (March) 1924

Diagnostic Value of Mucous Uterine Polyps. L. Tixier and L. Michon.—p. 253.
Pregnancy After Myomectomy. Goullioud.—p. 268.
*Case of Uterus Didelphys. C. Dambrin and J. Bernardbeig.—p. 292.

**Case of Uterus Didelphys.**—Dambrin and Bernardbeig describe a peculiar case of double uterus in one side of which there was a fibroma, while the other part was pregnant. The recent neuropathic symptoms, tachycardia, tremor, disordered movements, emotional instability and loss of weight called for intervention, and the fibromatous uterus of the didelphys twin organ was removed. This operation was performed in the third month of pregnancy. It proved effectual, since the childbirth occurred normally at full term.

## Journal d'Urologie Médicale et Chirurgicale, Paris

**17:** 177-272 (March) 1924

Urethroprostatitis. A. Hogge.—p. 177.
*Ambard's Laws. N. C. Paulesco et al.—p. 192.
*The Ambard Coefficient. E. Teposu.—p. 204.
*Cell Inclusions in Urethritis. J. Martin and M. Romieu.—p. 210.
Serap of Shell in Bladder for Eight Years. P. Santy and P. Wertheimer.—p. 214.
Calculus Causing Renal Hematuria for Ten Years. Lanzillotta.—p. 218.

**The Ambard Formula is Based on Incorrect Premises.**—Paulesco, Marza and Trifu present evidence to prove that the output of urea in the urine is directly proportional to the concentration of the urea in the blood and varies with this. It is not influenced by the concentration of the urea in the urine. This depends solely on the amount of water available in the organism.

**Nephrectomy Based on the Ambard Formula.**—Teposu extols the reliability of the Ambard formula as a guide for nephrectomy, relating two instances in which this was the only guide available. The tuberculous or cystic kidney was removed on the basis of the favorable Ambard coefficient when all other signs testified that the case was absolutely inoperable, but clinical recovery promptly followed the nephrectomy.

**Cell Inclusions in Gonococcus Urethritis.**—Martin and Romieu reproduce the microscopic findings showing from seven to twenty-four round bodies in the pavement cells found in the morning drop in a case of gonorrhea never quite cured during the three years since infection. The inclusions seem to be of a keratohyaline nature.

## Lyon Chirurgical

**21:** 117-256 (April) 1924

*Surgery of Cancer of the Esophagus. L. Bérard and P. Mallet-Guy.—p. 127.
Thoracoplasty in Bronchiectasis. P. Santy and M. Guilleminet.—p. 161.
Acrocyanosis Improved by Sympathectomy. E. Ledoux.—p. 182.
Ablation of the Geniculate Ganglion. R. Leriche and P. Wertheimer.—p. 185.

**Cancer of Thoracic Esophagus.**—Bérard and Mallet-Guy review the main surgical technics for removal of a cancer in the thoracic esophagus, summarizing the experiences to date. Five of the seventy patients have been saved by the operation in the last thirty-five years. In twenty cases the condition was found inoperable and the attempt had to be abandoned. The mortality even in the last ten years has been 85 per cent. The main dangers are complications liable to occur from shock or from intrapleural infection later. In the five successful cases, the upper stump was sutured to the skin and the lower stump invaginated in the stomach, while every precaution was taken to avoid injury or infection of the pleural serosa. A preliminary gastrostomy and an opening into the esophagus in the neck, to divert the saliva, reduce the discomfort and the dangers of the intervention.

## Nourrisson, Paris

12: 73-152 (March) 1924

*Import of Skin Tuberculin Reaction. A. B. Marfan.—p. 73.
Menstruation and Lactation. A. F. Canelli.—p. 92.
Congenital Stenosis of Duodenum. Marfan et al.—p. 101.
Malformations of the Heart. H. Lemaire and G. Blechmann.—p. 107.
Protection in Early Infancy. A. B. Marfan.—p. 126.
Hydrocele in Infant with Inherited Syphilis. G. Salès and P. Vallery-Radot.—p. 138.

**The Skin Tuberculin Reaction and Immunity to Tuberculosis.**—It has been claimed that when an infant displays a positive cutireaction, this proves that the child is in no danger if left with his tuberculous mother. But, according to Marfan, conditions are not so simple as this. All we know is that in Europe almost every adult human being is a bearer of tubercle bacilli. If these infect the organism in exceedingly small amounts and only at long intervals, after the second year of life immunity is liable to develop. But if large amounts of bacteria are infecting the organism at short intervals, the first intimate contact with tuberculosis having occurred in the individual not sooner than his fifteenth year, then the tubercle bacilli will not behave as harmless parasites but as virulent pathogenic agents. Marfan reiterates in conclusion that the first two years of life are the period in which it is most important that sources of contagion should be avoided, as during this period the acquisition of immunity is more difficult than at any other time of life.

## Scalpel, Brussels

77: 461-492 (April 12) 1924

*Vaccine Treatment of Gonorrhea. R. Duhot.—p. 461.
Clinical Electrocardiography. E. Stiénon.—p. 468. Conc'n, Asthma. J. Konings.—p. 480.

**Vaccine Treatment of Acute Gonorrhea.**—Duhot's fifteen years' experience with antigonococcus vaccines has convinced him that they must be administered by some more propitious method than the technic hitherto. If vaccines are heated much they are liable to lose their antigen properties, and the only effect from them then is that of protein therapy in general. The gonococcus has an affinity not only for the urethral mucosa but for the kidneys, prostate, synovia, tubes, ovaries and other organs, and he assumes that it has an affinity likewise for the skin. Application of the vaccine directly into the skin seems to enhance the immunizing action, and he has been much impressed with the prompt arrest of all symptoms in the patients treated with this cutivaccination, as he calls it. He introduces the vaccine into the epidermis, with a very fine needle, running it in horizontally in a fold of the skin of the buttocks pinched between thumb and forefinger. As much as 3 c.c. can be injected in this way, but he gives 0.5 c.c. the first day, 1 c.c. the third, 2 c.c. the fifth and continues with 2 c.c. every third day to a total of six of these cutivaccinations. In four cases this treatment was begun the second day after the first appearance of the discharge. The usual local and internal treatment was applied in addition. The gonococci had disappeared from the secretions the sixth day. In three women with infection of up to a year's standing, ovariectomy was being considered for the painful gonococcus ovaritis, but all recovered under the cutivaccination treatment.

## Riforma Medica, Naples

40: 337-360 (April 14) 1924

Case of Cutis Verticis Gyrata. B. Sparacio.—p. 337.
*Tuberculosis Agglutinins in Animals. E. Cioffi.—p. 339.
*Hemoptysis and Vagosympathetic Tonus. A. De Martini.—p. 341.

**Tuberculosis Agglutinins in Animals.**—Cioffi inoculated rabbits with living tubercle bacilli. Subsequent or previous parenteral injections of milk increased the agglutinin titer of these animals. He produced agglutinins in other rabbits with injections of dead bacilli. In this series the protein shock failed to restore the antibodies lost after splenectomy.

**Hemoptysis and Vagosympathetic Tonus.**—Martini applied the usual tests of the vegetative nervous system (oculocardiac reflex, epinephrin, pilocarpin, eserin and atropin) in patients with hemoptysis. He found in the majority signs of vagotonia. Atropin seemed to have, in some cases, a preventive and curative action on the hemoptysis.

## Rivista di Clinica Pediatrica, Florence

22: 217-288 (April) 1924

*Posture Reflexes in Infants. Z. L. Magni.—p. 217.
Anthropometry in Children. G. Del Duca.—p. 229.
"Etiology of Scarlet Fever." G. Caronia.—p. 241.
Biometry in Pediatrics. G. Frontali.—p. 250.

**Posture Reflexes in Infants.**—Magni studied the tonic reflex of the anterior tibialis muscle in infants. It is one of the most distinct posture reflexes (tonic reflexes produced by passive changes of the position of a joint). When the foot is flexed dorsally and at the same time rotated inward, the tendon of the anterior tibialis becomes apparent and keeps the foot in this position for a short time after the foot has been left free. He found the reflex in almost every healthy subject over one year of age. It was absent in poliomyelitis, postdiphtheria paralysis and hemiplegia. It was exaggerated in Parkinson's and Wilson's disease and in meningitis. He explains its absence in the new-born as an evidence of the mesocephalic origin of posture reflexes. The psychic condition of the child has a marked influence on the reflex response.

## Brazil-Medico, Rio de Janeiro

1: 139-154 (March 15) 1924

*Cephaloplegia. Armando Tavares.—p. 139.
Surgery in France in 1921-1922. Guelfucci.—p. 141.
Ophthalmic Herpes Zoster. E. de Campos.—p. 147.

**Cephaloplegia.**—Tavares encountered last year one case of the syndrome described by Figueira. It occurred during a small epidemic of acute poliomyelitis. The infant of 13 months presented a catarrhal affection of the upper air passages, with fever, sudden weakness and extreme flaccid paralysis of the muscles of the neck. The reflexes were normal, and the whole clinical picture subsided in four days. He considers it an abortive form of epidemic poliomyelitis.

1: 155-166 (March 22) 1924

*Epithelioma of Lid and Orbit. Heitor Praguer Fróes.—p. 155.
*The Central and Peripheral Syndromes with Aortic Incompetency. J. Barbosa.—p. 158. Begun p. 114.
Chronic Ciliary Blepharitis. E. de Campos.—p. 160.

**Epithelioma of the Orbit.**—The process began with a small "wart" at the inner commissure of the left eye. It rapidly increased after attempts at self-cauterization, and intense neuralgic pains and impairment of vision in the other eye justified the excision of the epithelioma. The woman's pregnancy was not interrupted. The tumor showed no signs of malignancy.

**Aortic Insufficiency.**—Barbosa concludes this long study of insufficiency of the aortic valve according as the artery, the valve itself or the myocardium is the main factor. The aortic incompetency from acute myocarditis has a favorable prognosis. Before assuming regurgitation into the aorta we must exclude dilatation of the aorta, pulmonary incompetency, and Potain's pulmonary heart murmur. He insists that every intracardiac murmur has some organic basis.

## Semana Médica, Buenos Aires

1: 539-578 (March 27) 1924

*Blindness from Sinusitis. E. B. Demaria.—p. 539.
Rachitic Deformity of the Legs. Carlos Lagos Garcia.—p. 545.
Congenital Nystagmus. E. Dellepiane Rawson and E. Adrogué.—p. 567.
Works on Plasmogenesis in 1923. A. L. Herrera.—p. 568.

**Blindness from Sinusitis.**—The acute axial optic neuritis (retrobulbar) in the woman of 48 whose case is described by Demaria was traced to an inflammatory process in the ethmoidal and sphenoidal sinuses. The onset of the sinusitis had been stormy with high fever, and the diagnosis had been influenza. These symptoms soon subsided, leaving transient deafness, but twelve days later pain in the left orbit developed, with loss of vision which soon became complete in both eyes. Little if any benefit was derived from medical measures nor from an operation on the sphenoidal sinuses, but recovery was soon complete after the ethmoidal sinuses had been cleared out, in addition, seven weeks after the first symptoms and nineteen days after the blindness had become total.

1: 579-630 (April 3) 1924

*Radiotherapy of Exophthalmic Goiter. J. Gutiérrez.—p. 579.
*The Prognosis in Angina Pectoris. F. C. Arrillaga.—p. 601.

Standardization of Foods for Diabetics. D. J. Rojo.—p. 607.
*Parenteral Protein Therapy. I. P. Costa.—p. 608.
Poliomyelitis Antiserum. E. Etchegoin.—p. 611.
Child Welfare Work in Buenos Aires in 1923. S. Oliva.—p. 613.

**Radiotherapy of Exophthalmic Goiter.**—Gutiérrez remarks that it improves the goiter and the exophthalmos but they do not subside entirely under it, but it cured the hyperthyroidism more or less completely in his thirty-five cases described in which from four to twenty exposures had been made. The pulse dropped from 132 to 96 and the weight increased in one case as the exophthalmos, goiter and nervousness improved; twenty exposures were required in this severe case, but only seven in another case with even more complete cure. The longer the hyperthyroidism has lasted, the longer the course of treatment. In one of his cases the supposed stormy reaction to the irradiation proved to be symptoms from mercurial poisoning.

**The Prognosis in Angina Pectoris.**—Arrillaga regards as important for the prognosis a pronounced difference between the systolic and the diastolic arterial pressures. This indicates a better outlook than when the difference is slight, whether the pressure as a whole is high or low. In a case cited the figures were 11 and 10, and his grave prognosis was justified by the woman's death that night. In another case the figures had been 14 and 12, but under medication and hygiene the difference became 5 instead of 2, and this man, aged 60, is now leading an active life. The age, the pulse (alternans) and the condition of the aorta and the peripheral vessels have to be taken into account, and the electrocardiogram is instructive. With the latter, the prognosis is of course graver with a negative T wave, especially when associated with atypical Q R S waves.

**Parenteral Protein Therapy.**—Costa has applied this method of treatment in thirteen different types of pathologic conditions, and states that great improvement was realized in 58 per cent. of his eighty-six cases. An abnormally intense reaction in four cases was explained by a tenia.

## Archiv für Dermatologie und Syphilis, Berlin

**147:** 1-160 (April 24) 1924

*Heredity in Origin of Nevus. H. W. Siemens.—p. 1.
*Skin Changes of Thyroid Origin. Bogroff and Krupnikoff.—p. 61.
*Sarcoid of Boeck and Lupus Pernio. H. Martenstein.—p. 70.
*Arsphenamin and the Liver. A. Kartamischew.—p. 100.
*Abortive Treatment of Syphilis. R. Mutschler.—p. 107.
Arsphenamin-Resistant Syphilis. S. Silberstein.—p. 116.
Blue Nevus. H. Stranz.—p. 131.
*Mercurial Eruption. E. Hoffert.—p. 135.
Warts and Pointed Condyloma. Waelsch and Habermann.—p. 144.

**Heredity in Origin of Nevus.**—Siemens expatiates on the importance of twins for the study of heredity, both familial and racial. He has investigated conditions in regard to nevus in forty-five pairs of twins of the same sex and twenty-three pairs of different sex. He restricts the term nevus to stable circumscribed changes in the skin and adjoining mucosa, which are asymmetrical and of unknown origin.

**Skin Changes of Thyroid Origin.**—An illustrated description is given of a case resembling the few on record of "myxomatous degeneration of the corium." The thyroid origin of the atypical myxedema was established by the improvement under thyroid treatment, the swelling and redness of the skin in the face and elsewhere subsiding and the general health improving. The patient was a woman of 45 with five healthy children, and the cutaneous dysthyrosis was of fifteen years' standing.

**Sarcoid of Boeck and Lupus Pernio.**—Martenstein presents evidence from eight cases of Boeck's sarcoid and ten of lupus beginning as a chilblain that each is a special form of reaction to tuberculous infection.

**Influence of Arsphenamin on Liver Functioning.**—Kartamischew states that the injury of the liver from arsphenamin is manifested even in a few hours after the intake by the appearance of liver lipase in the blood serum. When dissolved in a glucose solution, the action of arsphenamin on the liver is less durable than when given in distilled water. No lipase appeared in the serum after administration of the other drugs tested. A cumulative action was apparent after repeated injections of the arsphenamin.

**Abortive Treatment of Syphilis.**—Mutschler's experience with fifty-seven cases of primary syphilis has confirmed the almost certainty of successfully aborting the infection when one or two vigorous courses are given. The interval since infection must not be over four weeks at most, the regional lymph glands of normal size. With positive lumbar puncture findings and Wassermann reaction, the case cannot be regarded as in the abortive phase, hence the Wassermann test should be applied at every injection at first, and the spinal fluid examined by the second or third week.

**Mercurial Eruption.**—Hoffert discusses the exanthem recurring always in the same place. He describes a case in which the stretching of the skin (pregnancy) induced a predisposition to the mercurial eruption.

## Archiv für Verdauungskrankheiten, Berlin

**33:** 1-116 (April) 1924

*Gastroscopy in Diagnosis. H. Elsner.—p. 1.
Vegetative System and Digestion. H. Bŏwing.—p. 23.
*Gastric Ulcer. J. Wertheimer.—p. 60.
*Chromodiagnosis of the Stomach. N. Hirabayashi.—p. 71.
*Lactase in Adult Intestine. A. V. Marx.—p. 77.
*"Long Bacilli" of Feces. R. F. Weiss.—p. 87.
*Pathogenesis of Gastric Ulcer. L. Jarno.—p. 101.
*The Wolff-Junghans Reaction in Gastric Cancer. M. Riabow and W. Smotrow.—p. 105.

**Gastroscopy in Diagnosis.**—Elsner believes that every modification of his tube, especially Sternberg's gastroscope, is dangerous. Gastroscopy should be used only when other methods have failed. He believes that erosions of the mucosa account for the "hyperacidity pains."

**Gastric Ulcer.**—Wertheimer asserts that the upright posture is the real cause of the frequency and chronicity of gastric ulcers. The strained ligaments relax in the prone position, and the spontaneous and pressure pain in ulcer is less pronounced. He recommends to such patients this ventral position for half an hour after every meal. It works also as a preventive measure.

**Chromodiagnosis of the Stomach.**—Hirabayashi found that the velocity of excretion of neutral red by the stomach depends on the intensity of secretion as a whole. Local lesions of the mucosa delay and lower the excretion of the stain.

**Lactase in Adult Intestine.**—Marx examined stools of adults for the lactose-splitting ferment. Its presence could always be demonstrated when the extracts were incubated for twenty hours.

**"Long Bacilli" of Feces.**—Weiss studied the long iodophil bacilli which are present in great numbers in the stools in fermentative dyspepsia. They indicate a severer process than the equally iodophil clostridia. These bacilli—which he calls "streptobacillus intestinalis"—are morphologically entirely different from the Boas-Oppler bacilli which may be found occasionally in the stool with cancer of the stomach. They are much larger and stain brown homogeneously with Lugol's solution, while the finer Boas-Oppler bacilli contain only granules of iodophil substance. They cannot be cultivated in the sterilized content from cancerous stomachs.

**Pathogenesis of Gastric Ulcer.**—Jarno exposed the fluid expressed in Buchner's apparatus from pieces of hog's stomach to the action of pepsin and hydrochloric acid. The proteins were quickly digested, while the whole pieces of stomach resisted. The fluid expressed from the stomach was not coagulated by heat. He believes that a colliquative necrosis in the stomach is the beginning of an ulcer.

**The Wolff-Junghans Reaction in Gastric Cancer.**—Riabow and Smotrow estimated the amount of proteins in gastric contents with the Wolff-Junghans method. The reaction is useful in diagnosis only in the absence of free hydrochloric acid, blood and bile. Small amounts of proteins in achylia exclude and very high ones prove cancer.

## Deutsches Archiv für klinische Medizin, Leipzig

**144:** 1-112 (April) 1924

*Dynamics of the Blood Pressure. W. H. Jansen et al.—p. 1.
Calcium in Human Blood. W. H. Jansen.—p. 14.
*Heredity of Vegetative Syndromes. H. Ullmann.—p. 19.
*Urine in Severe Tuberculosis. H. Reinwein.—p. 37.
Radiation of Heat by Skin. R. Cobet and F. Bramigk.—p. 45.

Thoracic Leads in Electrocardiography. R. Ackermann.—p. 61.
Insulin and Respiration of Tissues. S. Büchner and E. Grafe.—p. 67.
*Respiration After Physical Exertion. E. Schott.—p. 86.

**Dynamics of the Blood Pressure.**—Jansen, Tams and Achelis confirm in animals and man the main regulation of blood pressure by the organs controlled by the splanchnic nerve. Its compensatory action is impaired in patients with hypertension.

**Heredity of Vegetative Syndromes.**—Ullmann publishes family histories of asthmatics with apparent hereditary transmission.

**Urine in Severe Tuberculosis.**—Reinwein isolated from the urine of patients with advanced pulmonary tuberculosis, histidin, methylguanidin and an alkaline compound of the formula $C_{35}H_{32}N_8O_4$, which he provisionally calls julin.

**Respiration After Exertion.**—Schott observed a Cheyne-Stokes type of breathing after exertion. It was absent in physically well trained men. It is an indicator of the condition of the respiratory metabolism.

## Deutsche medizinische Wochenschrift, Berlin

**50:** 487-526 (April 18) 1924

Insulin. Matthes.—p. 487.
Mechanism of Action of Insulin. E. Grafe.—p. 489.
*The Action of Insulin. T. Brugsch.—p. 491.
Insulin and Theory of Diabetes. Magnus-Levy.—p. 494.
Preparation and Standardization of Insulin. E. Laqueur.—p. 496.
Insulin in General Practice. P. F. Richter.—p. 499.
*Insulin Poisoning. A. Bornstein and K. Holm.—p. 503.
Significance of Ions. H. Handovsky.—p. 503.
*Gastric Achylia and Cancer. W. Zweig.—p. 505.
*Surgery and Nervous Stomach Affections. B. O. Pribram.—p. 506.
Lumbar Puncture in Early Syphilis. A. Goldscheider and A. Wittgenstein.—p. 508.
Vagotonia and Sympathicotonia. W. H. Veil.—p. 511.
Sedimentation Test in Gynecology. F. Cardauns.—p. 513.
Premature Expulsion of Placenta. Silberbusch.—p. 514.
*Dangers of Wireless Telegraphy. Axmann.—p. 514.
Kant's Relations to Medicine. T. Ziehen.—p. 515.
Kant's Relations to Natural Science. Kutzner.—p. 517.
Present Status of Treatment of Anemia. Klieneberger.—p. 523.

**The Theory of the Action of Insulin.**—Brugsch demonstrates with Meyerhof's theory the reason why the respiratory analysis fails to decide the problem of the action of insulin: The cleavage of glycogen down to sugar and lactic acid is anoxybiontic; the change of fat into carbohydrate and the partial processes cannot be detected with mere determination of the respiratory quotient. He promulgates his own theory based on the experiments of his co-workers. He believes that the same oxidative-synthetic process, leading from lactic acid over hexosediphosphoric acid to glycogen, takes place not only in the muscles, but also in the liver. Insulin enhances it as well as the formation of fat from sugar, and blocks the sugar formation from fat (over beta-oxybutyric acid). The diabetic disturbance starts in the splitting of sugar into lactic acid (first phase) and reaches also into the second synthetic phase. Insulin controls the whole process.

**Insulin Poisoning.**—Bornstein and Holm describe the symptoms of severe insulin poisoning of a healthy man. They used ten English units of insulin which had produced no grave effects in two previous tests, four and eight days before. The blood sugar was over 0.1 per cent. during the whole day.

**Gastric Achylia and Cancer.**—Zweig observed eight verified cases of development of cancer in middle aged patients whom he had been treating for ten to fifteen years for gastric achylia. The cancer progressed rapidly. He points to Konjetzny's finding of hyperplasia in such stomachs, and to the possibility of an abnormal digestion causing the formation of Freund and Kaminer's unsaturated dicarbonic acid compounds.

**Surgery and Nervous Stomach Affections.**—Pribram writes about his surgical experiences with neurotic affections of the stomach. Feeling of fullness or pains in the epigastrium are sometimes due to a reflex from the appendix or an epigastric hernia. Läwen's paravertebral anesthesia stops the pains for a short while. He saw no good results from alcohol injections into these nerves.

**Dangers of Wireless Telegraphy.**—Axmann observed in the personnel of a wireless telegraph station a loss of hair on the side of the head which was exposed for months to the apparatus. He believes that the electronic tubes acted like a weak roentgen tube.

## Deutsche Zeitschrift für Chirurgie, Leipzig

**184:** 289-423 (March) 1924

Microscopic Findings in Sarcoma After Irradiation. Grubauer.—p. 289.
*Causes of Growth Deformities. K. Braeunig.—p. 304.
*Intrathoracic Gravity Abscesses. Chaoul and Lange.—p. 348.
Causes of Torsion of Internal Organs. G. Schaetz.—p. 373.
Bilateral Os Trigonum. Harttung.—p. 382.
*Paralysis of Trapezius Muscle. R. Eden.—p. 387.
Operative Treatment of Perforated Gastric Ulcer. Feller.—p. 398.
Cervical Portion of Sympathetic System. L. Drüner.—p. 409.
*Resection in Hirschsprung's Disease. E. Huber.—p. 417.

**The Causes of Growth Deformities.**—Braeunig found that for the genesis of true growth deformities of the adolescent period, a constitutional predisposition, which manifests itself as the eunuchoidism of puberty, is a necessary prerequisite. Determining factors of this constitutional anomaly are an undue growth in the length of the bones and a constitutional weakness of the muscles. The inciting cause may be some abnormal, unequal weight bearing by certain bones. This in turn affects the growth of the lower limbs owing to the weakness of the musculature and delayed ossification in certain areas.

**Intrathoracic Gravitation Abscesses.**—The unusually good results (86 per cent. of recoveries) in Rollier's series of cases and the strong endorsement of Bier have brought a purely conservative form of treatment again into the foreground. But most writers report bad results from conservative treatment. In Lange's personal series of fifteen patients, three have died and one is moribund. Not one has been cured. In addition to the usual conservative measures, the abscesses were punctured, iodoform-glycerin was injected, and roentgen irradiation was employed.

**Treatment of Paralysis of the Trapezius Muscle by Myoplasty.**—Eden describes his method of muscle transplantation successfully applied in two cases of paralysis of the trapezius muscle following operative injury of the spinal accessory nerve. The earning capacity of both patients was fully restored.

**Total Resection of Colon in Hirschsprung's Disease.**—In Huber's patient, a boy, aged 10, the whole large intestine was involved, and the entire colon was removed. The lower ileum was united with the upper rectum. The result was excellent, no harmful sequels occurring. During the fifteen months since, the boy has developed normally, apparently not inferior to his mates in any respect.

## Klinische Wochenschrift, Berlin

**3:** 657-704 (April 15) 1924

Traumatic Injury and Cancer. H. Dürck.—p. 657.
*Death of the Heart. E. P. Pick.—p. 662.
*Respiration of Tissues. G. Ahlgren.—p. 667.
*Tuberculosis Problems. J. Igersheimer.—p. 668.
*Action of Iron on Erythrocytes. M. J. Roessingh.—p. 673.
*Diagnosis of Pancreas Disease. H. Simon.—p. 674.
*Hypoglycemic Reaction. H. Lax and G. Petényi.—p. 678.
*Blood Group Specific Antibodies. F. Schiff.—p. 679.
*Blood Group Precipitins. F. Schiff.—p. 679.
Blood Pressure in Pregnancy. M. Samuel.—p. 680.
*Humoral Transmission of Nerve Action. O. Loewi.—p. 680.
*Action of Insulin. A. Bornstein.—p. 681.
*Thrombosis After Childbirth. H. H. Schmid.—p. 682.
Vocational Advising. C. Coerper.—p. 685.
Action of Atropin on Intestine. K. Schübel.—p. 687.

**The First and Last to Die of all the Elements in the Heart.**—Pick observed with Ishihara contractions of the Purkinje fibers from mammalian hearts many hours after death. He believes that they are the last surviving part of the heart. Except in case of direct injuries or poisoning of the conducting system, death is never due to the conducting apparatus itself; it is the transmission of the impulses from it to the heart muscle which suffers first. Whenever the heart action is restored by means of Locke's, or preferably buffered fluids, the resuscitation occurs by restoring this transmission of impulses. Oxygen is a very important element for this. Addition of glucose with insulin to the fluid was so successful in his experiments that he suggests the use of the combination of oxygen, glucose and insulin in failing hearts.

**Respiration of Tissues.**—Ahlgren found that insulin accelerates the reduction of methylene blue by the muscles of pancreatectomized frogs. When it was added with glucose the reaction was accelerated up to threefold. Addition of levulose, galactose and various organic acids, including acetoacetic and beta-oxybutyric acids, did not increase the action of insulin. Epinephrin, thyroxin, pituitary extracts and various alkaloids enhanced the respiration of the tissues. Nevertheless, epinephrin was an antagonist to insulin when used simultaneously. Pituitary extract acted as a synergist.

**Tuberculosis Problems.**—Igersheimer saw no iritis in animals after corneal inoculation of tubercle bacilli. He found pulmonary tuberculosis in about 20 per cent. of the patients who had scrofulosis—especially phlyctenae—when young. A pronounced tuberculin reaction accompanied usually a tendency to recurring phlyctenae. It was in no relation to the severity of the eye affection.

**Iron Treatment and Oxygen Consumption of Erythrocytes.**—Roessingh gave large doses of iron compounds (corresponding to 2.25 gm. of iron daily) to various patients. In almost every case the erythrocytes acquired or increased the capacity to destroy oxygen. As a rule, the red corpuscles of mammals do not reduce oxyhemoglobin except in anemias not due to cancer. He explains the experiments as evidence of a stimulation of the bone marrow and proof of the usefulness of iron therapy.

**Diagnosis of Pancreas Disease.**—Simon found an atoxyl-resistant lipase in human serum only in some affections of the pancreas and pernicious anemia. It was also present in hemolyzed erythrocytes. The reaction was negative in diabetes.

**Hypoglycemic Reaction.**—Lax and Petényi observed remarkable hypoglycemia in twenty-nine patients with tetany, in the second phase after injections of epinephrin. The blood sugar in seven patients was as low as 0.05 to 0.06 per cent., in three, 0.03 to 0.04 per cent. and in one, 0.028 per cent. Thus the hypoglycemia alone does not explain the insulin intoxication.

**Blood Group Specific Antibodies.**—Schiff points to the analogy between the blood group antigens and Forssmann's heterogenetic antigen (the same antigen present in sheep's blood, and kidneys of guinea-pigs and horses). Both kinds of antigen appear in an interrupted series (groups in the same species, Forssmann's in widely different animals), and the individuals or species which have not the antigen have, as a rule, the corresponding antibody in their serum. He found in some of the hemolytic antisheep serums from rabbits, agglutinins for Jansky's human Groups II and IV (receptor A and A + B). Rabbits injected with human blood of Group II produce a serum which hemolyzes human and sheep blood. The human group specific receptor A is, to a large extent, identical with the species-specific antigen from sheep erythrocytes, and with the antigen contained in the organs of guinea-pigs and horses. Some rabbits do not produce the group-specific antibody when injected with sheep blood. It is probable that these animals have the receptor A, themselves, just as they have the B receptor, as a rule. The serum from one rabbit immunized with human corpuscles of Group II (receptor A) strongly agglutinated the corpuscles of Groups II and IV, and weakly, Groups I and III. It precipitated with the serum of Groups II and IV in a dilution of 1:100, while serums from the other groups produced no change.

**Humoral Transmission of Nerve Action.**—Loewi found that the accelerator nerve requires a stronger stimulus than the vagus. Therefore, he obtains exclusively vagus action with the perfusing fluid from those hearts in which he uses slight stimuli.

**Action of Insulin.**—Bornstein found with Griesbach an increase of the blood sugar in the perfusing fluid of a liver after insulin. It inhibited, however, the mobilizing action of epinephrin. He did not find always an increase of the respiratory quotient after insulin, and believes that it regulates only the formation of sugar, not its destruction.

**Thrombosis After Childbirth.**—Schmid considers the weak heart and lack of movements as the main cause of thrombosis after childbirth and operation. The preventive treatment is self-evident. Round garters should not be worn in pregnancy. The first signs of thrombosis of the femoral vein are pains. The perimalleolar edema comes later. Thrombosis of the hypogastric vein causes edema of one buttock and the lumbar region. Cystoscopy reveals the stasis in one half of the bladder, and hematuria may occur. Thrombosis of the ovarian vein does not necessarily cause any symptoms. Even the temperature may remain normal.

## Medizinische Klinik, Berlin

**20:** 511-554 (April 20) 1924

Glycemic Dyscrasias. R. Schmidt.—p. 511.
*Chronic Appendicitis. L. Kuttner.—p. 516.
Treatment After Operations on the Stomach. G. Singer.—p. 520
Malignant Goiter. F. Kraus.—p. 523.
*Tardy Syphilitic Arthritis. H. Schlesinger.—p. 524.
*Perception of Right and Left Sides. C. Elze.—p. 529.
Treatment of Acute Leukemia. G. Wodtke.—p. 530.
*Periarterial Sympathectomy. K. Brandenburg.—p. 532.
*Leukocytosis After "Psychic Meal." F. Glaser.—p. 535.
*Nutrition and Action of Insulin. E. Abderhalden.—p. 537.
Progressive Paralysis Questions. K. Singer.—p. 538.
Recent Works on Ophthalmology. C. Adam.—p. 540.
Legal Aspects of Practice. F. Thomas.—p. 550.

**Chronic Appendicitis.**—Kuttner measures the temperature in the axilla and the rectum after a walk. The difference was greater (0.8 C.) in many of his patients with chronic appendicitis. Slight increases in temperature may mislead the diagnosis to assumption of a latent tuberculosis. If the roentgen contrast suspension remains in the appendix after the bowel has been emptied (following 2 tablespoonfuls of castor oil), it is an important sign. If the diagnosis is uncertain, he regards conservative treatment as preferable to an operation.

**Tardy Syphilitic Arthritis.**—Schlesinger considers affections of joints as one of the frequent manifestations of syphilis. It is very important to note that high fever may accompany the process. There is hardly any form of acute or chronic arthritis which may not be simulated by syphilis. The history of the patients, periosteitis and other manifestations of syphilis give important diagnostic hints. The Wassermann reaction is frequently negative, especially in the serum. The prognosis is the best of all forms of chronic arthritis if the etiology is thought of and specific treatment, beginning with mercury, is instituted. Local applications of mercurial plaster mitigate the pains.

**Perception of Right and Left Sides.**—Elze believes that the ability to differentiate the right and left side is a primary function of the brain, which is frequently lacking in a greater or less degree. Certain superior men (Helmholtz) and many university teachers are "right-left blind" and have to make a conscious effort to distinguish between the right and left sides.

**Periarterial Sympathectomy.**—Brandenburg reports the results of a collective inquiry among a number of German surgeons. It seems that the majority of patients were benefited for a while by the periarterial sympathectomy. Permanent good results were rare. Patients with sclerotic vessels require especially careful management.

**Leukocytosis After "Psychic Meal."**—Glaser found after a sham meal the same changes of leukocytes as after real food intake. Both depend equally on changes of the tonus of the vegetative nervous system.

**Nutrition and Action of Insulin.**—Abderhalden and Wertheimer found that frogs and pigeons are extremely resistant to insulin. Rats and mice fed chiefly on fat and proteins reacted moderately to doses which were threefold lethal for the controls fed with carbohydrates or the usual food. They advise similar investigations in diabetics.

## Monatsschrift für Geb. und Gynäkologie, Berlin

**66:** 1-78 (April) 1924

Respiratory Gas Interchanges in the Pregnant. E. Klaften.—p. 1.
*Turgidization of the Placenta. H. Heidler.—p. 11.
*Chronic Gonorrhea in Women. H. Naujoks.—p. 31.
Experimental Hermaphroditism. F. Unterberger.—p. 41.
Recent Works on the Blood from Gynecologic Standpoint. J. Strecker. —p. 48.

**Turgidization of the Placenta.**—Heidler has compiled records of 180 cases in which a fluid was injected into the retained placenta through the umbilical vein. He adds 100 personally observed cases to the list, including 33 in which there was no hemorrhage. His verdict is that the procedure is harmless but the effect is dubious, and it is not wise to waste time on it if there is hemorrhage. In the 67 cases with hemorrhage, a tendency to hemostatic action was apparent in only two instances, and even this was dubious.

**Gonorrhea in the Female.**—Naujoks combined vaccine therapy with local silver nitrate treatment in twenty-seven cases, with recovery of 70.4 per cent. He used what he calls "fresh vaccine," that is, derived from any gonococcus focus in other persons, and used within four to six weeks. The injection was intravenous, and was repeated at intervals of from five to eight days. The reaction was always stormy but transient. The course required from fifteen to thirty-two weeks. His experience with 144 cases of gonorrhea in the female has convinced him that this combined treatment represents progress.

## Münchener medizinische Wochenschrift, Munich

**71:** 459-490 (April 11) 1924

*Primary Specific Allergy. H. Kämmerer.—p. 459.
Nomenclature in Tuberculosis Immunity. H. Selter.—p. 462.
Gastroscopy. Rahnenführer.—p. 465.
*Treatment of Rachitic Deformities. C. R. H. Rabl.—p. 468.
Differential Import of Heat Coagulating Point of Serums. J. K. Mayr and H. Hofstadt.—p. 470.
Affections of Eyes and Teeth. Hensen.—p. 470.
Serpiginous Ulcer of the Cornea. W. Eigel.—p. 472.
Ascarid in Abdominal Cavity. A. Kortzeborn.—p. 473.
Atropin Poisoning. Grassmann.—p. 475.
Simplification of Endoscopic Apparatus. Praetorius.—p. 475.
Subtrochanter Osteotomy. F. Hahn.—p. 476.
Pulmonary Tuberculosis in General Practice. K. H. Blümel.—p. 476.

**Primary Specific Allergy.**—Kämmerer uses the term allergy for all the abnormal reactions to foreign substances. Many organs may be affected. Hives, Quincke's edema, exanthems and inflammations of skin, asthma, coryza, stomach troubles and diarrhea from a reaction of mucous membranes, collapse, shock, the hemoclastic crisis and, perhaps, migraine and epilepsy might be manifestations of allergy. There are many differences between these conditions and anaphylaxis. A constitutional and frequently inherited factor has to be assumed, even when sensitization has occurred (as in asthma from pneumococci after pneumonia), because the majority of subjects do not develop such symptoms. The tuberculin reaction parallels, to a great extent, a similar reaction to salt solution. He believes that both are essentially vasomotor phenomena conditioned by the irritability of the vegetative nervous system. Skin tests in hysteria and neuroses are subject to great errors because of the psychic influence. He believes that toxic amins act differently according to the inherited constitution of the protein molecules of the body.

**Correction of Rachitic Curvature Without Operation.**—Rabl found that the reaction of the tissue fluid is of decisive significance for calcium deposits. He treats old deformities from rickets in children—without operation—by softening the bones by an acidosis. The child gets, daily, 0.15-0.25 gm. ammonium chlorid per kilogram of body weight. The salt is preferably given with sugar (15 parts of ammonium chlorid; 180 parts saccharose, and distilled water to 300 parts). At the same time he induces venous stasis in the affected extremities for about twenty hours daily. This treatment probably affects other bones (spine) to a slight degree and, therefore, the child has to lie in bed. The bones get soft in a few weeks, and can then be bent to the proper shape. After application of a cast in the corrected position, the treatment has to endeavor to increase the calcium content (ultraviolet rays, phosphorus, cod liver oil, fresh vegetables, fruits and a little calcium lactate). The hardening of the bones takes from four to six weeks. A positive calcium balance also shortens the healing time in fractures.

## Zentralblatt für Chirurgie, Leipzig

**51:** 709-774 (April 5) 1924

Laurentius Heister, Surgeon, 1683-1758. V. Schmieden.—p. 710.
Origin, Retrogression and Prophylaxis of Peritoneal Adhesions. E. Payr.—p. 718.
Reconstruction of Common Bile Duct. T. Naegeli.—p. 727.
*Conservative Treatment of Old Luxation of Elbow. Weil.—p. 728.
A Rare Form of Mesentery in Region of Lower Ileum and Ascending Colon. B. Oeischlägel.—p. 730.
*Suprapubic Prostatectomy. G. Mertens.—p. 732.
*Improvement of Phimosis Operation. Sievers.—p. 733.
Sartorius Muscle to Close Hernial Opening. Kutscha-Lissberg.—p. 738.

**Conservative Treatment of Old Luxations of the Elbow.**—Weil describes and recommends the conservative treatment that he has employed in three cases of backward dislocation of the elbow. The results were as good if not better than the outcome from the average surgical intervention.

**Immediate Suture of the Bladder After Suprapubic Prostatectomy.**—Mertens reports two further cases in which he sutured the bladder at once. In the one case, the patient, aged 76, died from renal insufficiency the eighth day following operation. The bladder suture had healed by first intention. In the second case, the patient, aged 73, was dismissed on the nineteenth day after the operation, with continence fully restored and normal micturition. Bladder and abdominal sutures healed by first intention. The suprapubic prostatectomy is performed under intraspinal anesthesia, with complete primary closure of the bladder, no artificial drainage, and usually no retention catheter. Mertens thinks the advantages of this "ideal" method are so apparent and the disadvantages so slight that it deserves to be tested on a large series of cases.

**Cosmetic Improvement of Phimosis Operation.**—Sievers describes a method of plastic surgery which avoids shortening the prepuce unduly and thus exposing the glans penis.

## Zentralblatt für innere Medizin, Leipzig

**45:** 289-320 (April 19) 1924

*Sex Predisposition in Diphtheria. H. Günther.—p. 290.

**Sex Predisposition in Diphtheria.**—Günther's figures show a larger percentage of diphtheria in female than in male infants in the first half year of life. From the fifth year onward, there is a progressive increase in the diphtheria morbidity in females. In spite of this, the mortality of boys is higher because of the greater frequency of laryngeal diphtheria.

## Casopis lekaruv ceskych, Prague

**63:** 617-652 (April 19) 1924

Ovarian and Uterine Cycle. J. Trapl.—p. 617. Cont'd.
Treatment of Surgical Tuberculosis. Zahradnický.—p. 621. Cont'd.
*Hemolytic Immune Serums. Kredba.—p. 626.
Carbonated Baths. M. Wassermann.—p. 631. Cont'd.
Ureter Calculi. J. Rejsek.—p. 636. Cont'n.
*Treatment of Paralysis of Serratus Magnus. E. Haim.—p. 643.

**Hemolytic Immune Serums.**—Kredba mixed strong hemolytic serums with normal or weak hemolytic serums from rabbits. The titer of the resulting mixture was much closer to that of the original strong serum than expected. He believes that the weak serum activates some preformed function of the strong serum.

**Treatment of Paralysis of Serratus Anterior.**—Haim sutured the middle portion of the large pectoral muscle to the angle of the scapula in a case of paralysis of the serratus magnus muscle.

## Grèce Médicale, Athens

**26:** 1-32 (Feb.) 1924

*The Fight Against Epidemics in Greece. M. A. Gautier.—p. 1.
*The Neisser-Wechsberg Phenomenon. G. S. Joannidès.—p. 26.
*Tuberculosis and Hemorrhagic Purpura. A. Pratsicas.—p. 28.

**The Fight Against Epidemics in Greece.**—This is the official detailed report of the Epidemics Commission of the League of Nations which had charge of the more than a million refugees expelled from Asia Minor and Thrace, starting its work in December, 1922. The refugees and the populace were vaccinated against smallpox, typhoid, cholera, plague and dysentery, as epidemics threatened. In the Athens district, with 117,588 refugees, the mortality after the first two months was reduced to the average annual mortality of the region. The government of Greece accomplished prodigies in transportation and distribution of the refugees, and the mildness of the climate aided private and public charity so that they escaped the fate of the Poles Gautier saw driven out of

Russia in 1921-1922, with its hecatomb of human lives. In the Salonica district, however, the death rate was 37 per thousand among the refugees, and malaria, tuberculosis and dysentery are increasing. A total of 93,243 were vaccinated in 1923 against plague; 26,880 against dysentery, and 655,580 against typhoid, paratyphoid and cholera in one vaccine, and 488,381 with a similar polyvalent vaccine (Tetra B).

**The Neisser-Wechsberg Phenomenon.**—Joannidès asserts that this phenomenon is neither specific to serums nor unique nor paradoxic. A given substance induces different effects according to the amount used. Lysis of the cellular antigens is realized by the coagulating action of the specific antibody and the lysant action of the complement. There is an optimal amount of the specific antibody with which lysis is most pronounced. It grows less with amounts above or below this. He cites as an example the precipitation of globulins in distilled water, while they dissolve in 9 per thousand sodium chlorid solution, and if more sodium chlorid is added, to saturation, precipitation of the globulins occurs anew.

**Tuberculosis in Relation to Hemorrhagic Purpura.**—Necropsy in Pratsicas' four cases of typical hemorrhagic purpura revealed the lesions of miliary tuberculosis. Tuberculous infection should always be suggested, he affirms, in every hemorrhagic syndrome, whatever its nature.

## Mededeel. v. d. Burg. Geneesk. Dienst, Batavia

1-114, 1924. English Edition

*Neoplasms in the Lungs. Oudendal.—p. 1.
*Metabolic Experiments on Rats. B. C. P. Jansen and Donath.—p. 25.
*Vitamin Content of Indian Foodstuffs. Idem.—p. 46.
*The Ludlowi Mosquito and Its Extermination. Ter Poorten.—p. 99.

**Proliferation of Epithelium and Formation of Cysts in the Lungs.**—Oudendal gives twenty-one colored illustrations of the findings in five cases. They suggest an embryonal origin. Among the thirty cases of cysts in the lungs he has found recorded, two were in twin sisters.

**Metabolic Experiments on Rats.**—Jansen and Donath declare that the omnivorous habits of rats and the composition of their urine resemble those of man more closely than those of other animals, so they are peculiarly fitted for research on metabolism. They extol the advantages of their improved diet cage which is fitted below with a sloping chute of narrow mesh brass netting or nitrogen-free filter paper which has been soaked in a solution of oxalic acid and dried. Down this chute the rat's feces roll and drop into a dish below. The urine drips through into another dish below or is caught by the filter paper. The urine receptacle below is lined with filter paper soaked in sodium picrate, and every droplet of the rat urine leaves a permanent red stain on this paper. They tabulate the metabolic findings with thirty-nine different articles of food, tested for months on young white rats in separate cages. The outcome indicates that the proteins of soy beans, and particularly the fermented product made from boiled soy beans, called *tempe kedele*, are peculiarly effectual in supplying the deficient proteins in a rice diet. They seem to be more valuable in this respect than the proteins of meat and dried fish. Milk ranks high in this respect. For the deficiency of vitamin A in the rice diet, fresh fruit, especially bananas, fresh or boiled vegetables and duck eggs rank highest. They assert that an average of one banana a day will most probably avert all vitamin deficiency disturbances from a diet consisting mainly of rice. In one group of sixteen rats (between rats No. 657 and No. 867) that had developed xerophthalmia on a diet of unpolished rice, the eyes returned to normal after addition of dried and boiled leaves of the pumpkin plant. This effect was realized with only 1 or 2 per cent. of the pumpkin dry substance.

**The Ludlowi Mosquito.**—Study of 1,500 female anopheles of the ludlowi type has enabled Ter Poorten to draw the composite picture of this which he calls "the most dangerous of our malaria transmitters." It seems to prefer the seacoast atmosphere but breeds indiscriminately in brackish and fresh waters and even fecal smelling waters. The proximity of man seems to be the main point, and it can cover a distance up to 2 kilometers.

## Acta Medica Scandinavica, Stockholm

**60:** 291-489 (April 15) 1924

*Urobilin. E. B. Salén.—p. 291.
Intermediate Chlorin Metabolism. P. Iversen.—p. 359.
Regulation of Neutrality in Acidosis. Norvig and Larsen.—p. 372.
*Action of Serum on Bacilli. F. Wulff.—p. 393.
Infiltration of Subcutaneous Tissue. G. Wiltrup.—p. 432.
*Morgan Theory of Heredity. G. Bonnier.—p. 471.
Spontaneous Pneumothorax. J. Möllerström.—p. 477.

**Urobilin.**—Salén found an increase of urobilin in the urine of healthy persons about five hours after meals. A very strong reaction at the time does not mean much, while a weak reaction in the morning urine must be considered pathologic.

**Action of Serum on Bacteria.**—Wulff studied the action of normal plasma and serum from man and animals on various germs. Gram-positive micro-organisms (staphylococci, streptococci and diphtheria bacilli) were resistant.

**Morgan Theory of Heredity.**—Bonnier emphasizes the scant value of research of heredity of diseases in man before we have complete charts of distribution of normal gens in the human chromosomes (Morgan's theory).

## Norsk Magazin for Lægevidenskaben, Christiania

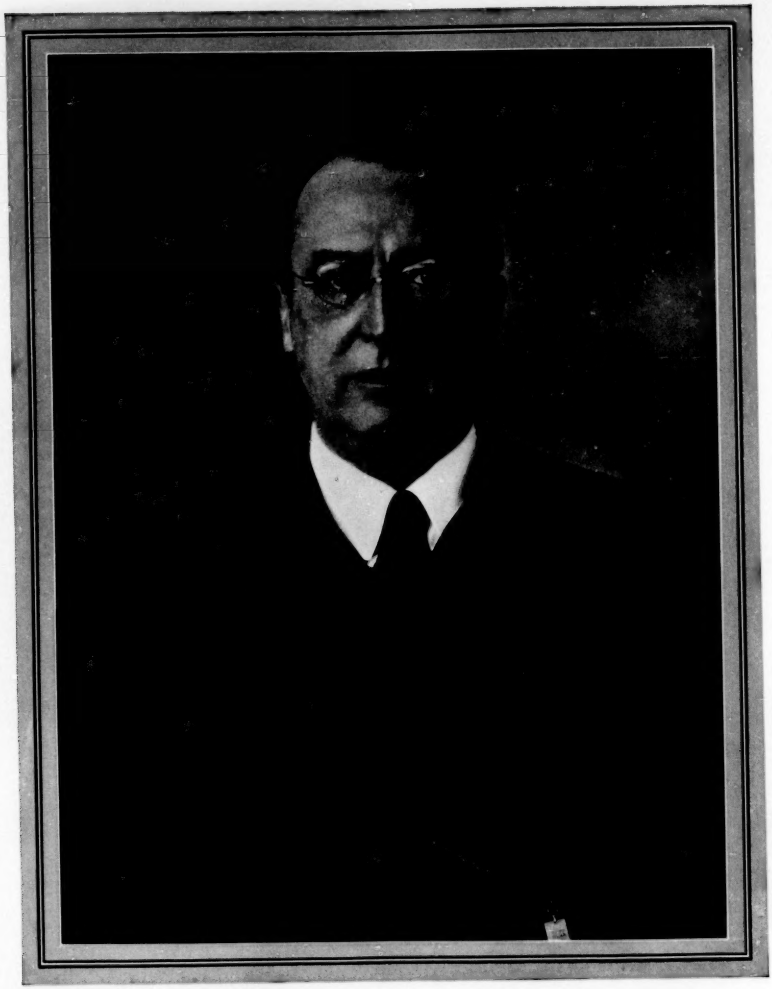
**85:** 273-336 (April) 1924

*Chronic Glycosuria. H. F. Høst.—p. 273.
*Physiologic Actions of Insulin. H. C. Geelmuyden.—p. 285.
Atypical Intussusception. Two Cases. E. Platou.—p. 292.
Lung Abscess from Artificial Tooth Plate in Esophagus; Recovery After Operation. K. Nicolaysen.—p. 296.
*Enuresis and Spina Bifida. A. J. A. Arnesen.—p. 299.

**Chronic Glycosuria.**—Høst has had seven cases of chronic glycosuria under observation for several years in which the sugar content of the blood keeps within normal range. The threshold for excretion of sugar is abnormally low, but the condition cannot be regarded as pathologic and no dietetic restrictions are required. On the other hand, in a group of three other cases—otherwise similar and all free from symptoms—the glycemia runs up high under tolerance tests. He is inclined to consider these as a mild form of diabetes, and advise supervision of the diet. No instance is known of the threshold glycosuria type developing into true diabetes, but there is danger of this in the hyperglycemia type. The reason why the test hyperglycemia in these chronic glycosuria cases has escaped detection hitherto is because it occurs very rapidly after the intake of the test 50 gm. of glucose, and passes off rapidly, the sugar content of the blood returning to its former figure in two hours. In both groups, the glycosuria was a casual discovery as the subjects were apparently in absolute health. According to the height of the threshold, the glycosuria was continuous or intermittent, and the intensity was dependent on the intake of carbohydrates.

**Physiologic Actions of Insulin.**—Geelmuyden presents arguments to sustain the assumption that insulin reduces the sugar and glycogen to fat. Also that the symptoms from an overdose of insulin cannot be due to the hypoglycemia itself; these symptoms may appear before the sugar content of the blood has dropped. He thinks that some other action of the insulin is responsible for them. This may possibly be that the insulin binds the sugar and glycogen so firmly that they cannot be mobilized but are transformed to fat both in the liver and other organs. The organs suffer from the lack of the carbohydrate thus transformed, and, consequently, administration of sugar restores their functioning, and the symptoms that we have been ascribing to the hypoglycemia subside. They subside too promptly to be due to the action of insulin; this takes time to act. Epinephrin combats the action of insulin, arrests this transformation of sugar into fat, and promotes oxidation of the fat into sugar.

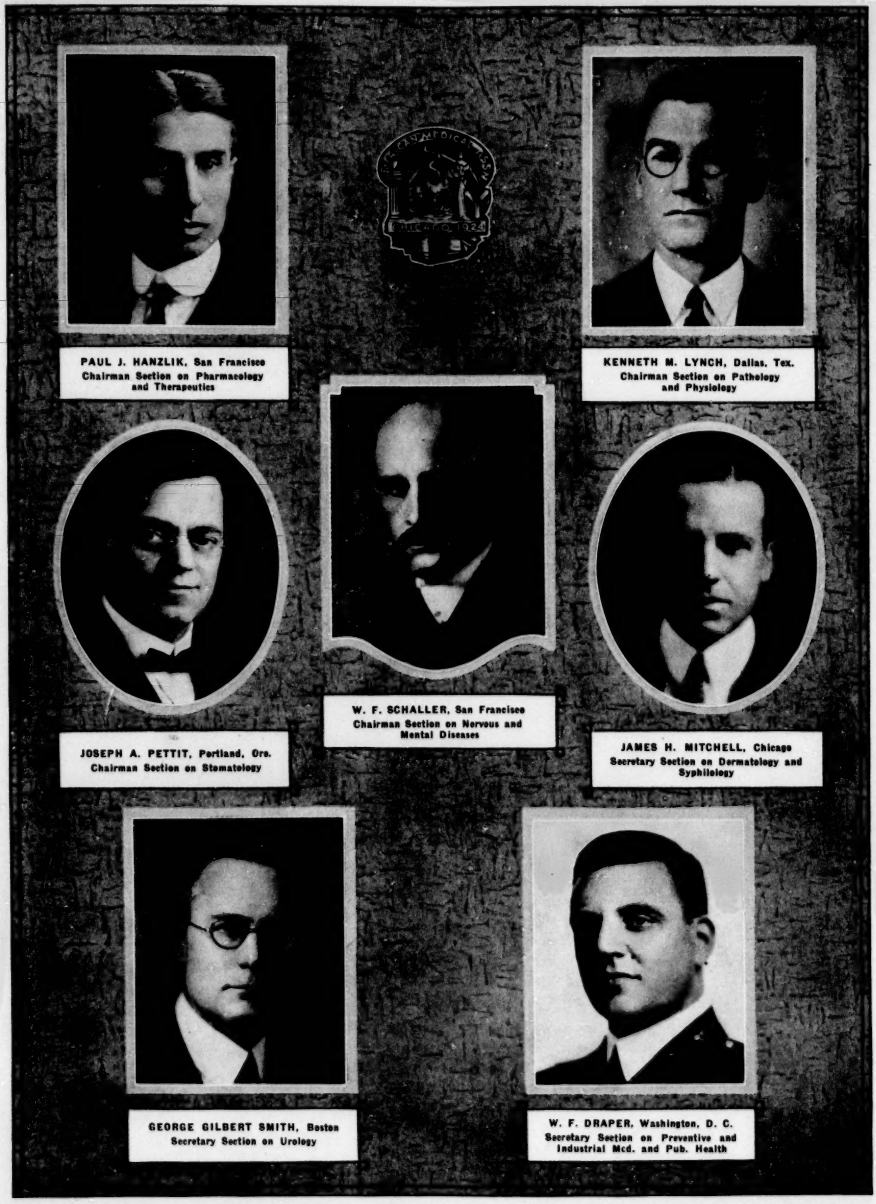
**Enuresis and Spina Bifida.**—Arnesen found spina bifida in 53.6 per cent. of twenty-eight cases of enuresis, and urges search for vertebral anomalies in all cases of rebellious enuresis. Laminectomy of the gaping fifth lumbar vertebra in one young man with inveterate enuresis has apparently cured him; there has been no recurrence during the more than three months to date.



PRESIDENT AMERICAN MEDICAL ASSOCIATION, 1924-1925

JOSEPH A. CAPPS, Chicago
Chairman Section on Practice of Medicine
J. TATE MASON, Seattle
Secretary Section on Surgery, General and Abdominal
WM. E. MUSGRAVE, San Francisco
Vice President American Medical Association
FRANK W. LYNCH, San Francisco
Chairman Section on Obstetrics, Gynecology and Abdominal Surgery
WILLIAM C. FINNOFF, Denver
Secretary Section on Ophthalmology
WENDELL C. PHILLIPS, New York
Chairman Section on Laryngology, Otology and Rhinology
H. F. HELMHOLZ, Rochester, Minn.
Chairman Section on Diseases of Children

SOME OFFICERS FOR THE CHICAGO SESSION, 1924


PAUL J. HANZLIK, San Francisco
Chairman Section on Pharmacology and Therapeutics
KENNETH M. LYNCH, Dallas, Tex.
Chairman Section on Pathology and Physiology
W. F. SCHALLER, San Francisco
Chairman Section on Nervous and Mental Diseases
JOSEPH A. PETTIT, Portland, Ore.
Chairman Section on Stomatology
JAMES H. MITCHELL, Chicago
Secretary Section on Dermatology and Syphilology
GEORGE GILBERT SMITH, Boston
Secretary Section on Urology
W. F. DRAPER, Washington, D. C.
Secretary Section on Preventive and Industrial Med. and Pub. Health

SOME OFFICERS FOR THE CHICAGO SESSION, 1924